

INDUSTRY AND ENERGY DEPARTMENT WORKING PAPER
ENERGY SERIES PAPER No. 22

A Review of Regulation of the Power Sectors in the Developing Countries

February 1990

E. Daffern
AF61E
J11-077

FILE COPY

**A REVIEW OF REGULATION OF THE POWER SECTORS
IN THE DEVELOPING COUNTRIES**

**Peter A. Cordukes
Energy Development Division
Industry and Energy Department**

February 1990

**Copyright (c) 1990
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433
U.S.A.**

This report is one of a series issued by the Industry and Energy Department for the information and guidance of Bank staff. The report may not be published or quoted as representing the views of the Bank Group, nor does the Bank Group accept responsibility for its accuracy or completeness.

Abstract

This working paper reviews the status of regulation in the power sectors of 22 developing countries, and identifies issues for reform of regulatory structures and options for Bank policy to promote sound reforms. The paper does not attempt to prescribe how the power sector should be regulated or who should regulate it. It does attempt to describe how regulation has worked and to identify those features and characteristics which have contributed to successful regulation. The review makes references to performance in the countries reviewed based on examination often of only a small selection of loans to utilities in a particular country. Thus the conclusions reached may not be representative of that country's overall performance but more of the particular operations or borrower reviewed. In countries where the Bank has a long history of lending in the power sector to many different borrowers e.g. India, Colombia and Brazil, this type of problem is difficult to avoid unless a much more comprehensive review is undertaken.

Foreword

Regulation is the enforcement and monitoring of a set of operational rules to meet defined objectives by an appointed autonomous agency accountable to government. Governments have regarded electricity as a public good for which they have had the prime responsibility to ensure national control over the sector. As a result the organization of power supply in developing countries has generally become centralized under state ownership. Hence electric utilities have been used by governments to meet their own social, political and economic objectives not the least of which have been to constrain the price of electricity. However, in so doing, electric utilities have not been operated efficiently primarily because of the absence of competitive forces and an adequate level of accountability.

Governments have sought to control the policies and operations of electric utilities through regulation. They have done so, partly through regulations issued by political and administrative authorities in the form of laws, decrees and decisions by ministers or regulatory bodies. Regulation has taken many forms. In addition to controlling prices and restricting access to the market by other suppliers, governments have regulated utilities by controlling borrowing and investment programs and generally restricting the power and autonomy of boards of directors and managers. Apart from the abovementioned factors, regulation has been aimed at ensuring the efficiency of the industry, the safety of supply, minimizing environmental impact, and constraining the power of utilities to operate other than under civil service regulations. A wide variety of approaches to regulation has been developed, but no general model has been satisfactorily formulated.

Traditional regulation has not worked. There is widespread disillusionment in developed and developing countries with the ineffectiveness of regulation in meeting economic efficiency, financial and operational objectives. Responsibility for regulation has often been shared with several ministries. Power regulations have been either incomplete or not formalized, contradictory or open to arbitrary interpretation. This situation is often due to lack of regulatory expertise and resources. The utilities in less developed countries with the best operational and financial performance are concentrated among the main wholesale suppliers. In some cases they have been too powerful for the regulators to prevent them from exploiting their monopoly positions. These enterprises are less exposed than the retailers to the problems of poor regulation and economic difficulties. In typical situations, governments limit the autonomy of poorly performing utilities which in turn impairs the utility's technical efficiency and financial strength. This tends to provoke government intervention in operational matters and increases pressure on public finances for operational subsidies and government budgetary grants.

Unsatisfactory power sector performance is raising serious questions about the effectiveness of traditional arrangements for sector control. The view that the electric power sector is essentially a natural monopoly is being challenged both in developed countries and in many developing countries. In particular, there is role for competitive forces in generation and many ancillary activities. Another credible explanation based on experience is that government-owned and regulated utilities are not efficient. This has

encouraged governments to look at reducing the barriers to entry to increase competition. There is an expectation that competition especially among generation suppliers may lead to increased efficiency. However to encourage competition there needs to be a change in the regulatory framework, and deregulation to reduce government involvement in day to day operations and provide sufficient autonomy to utilities to allow them operate on a fair basis with other suppliers. There is still clearly a need for regulation in the power sector to limit profits and ensure an adequate, safe and reliable supply of electricity to all consumers who are able and willing to pay the cost of supply.

Deregulation to encourage competition requires governments to develop a regulatory environment that permits other power plant operators to sell power to the grid. Private investors need to be guaranteed a reasonable return on their investment and in turn must be willing to accept a reasonable share of the risk in return for providing non-recourse financing. This also requires governments to afford utilities greater autonomy to enable them to compete on the same terms with private generators. Essentially this implies governments would be willing to relax controls over pricing, borrowing and investment programs of utilities. In their place, regulations need to be established to monitor the efficiency of operating performance of utilities. This process of changing the way electric utilities are regulated is still evolving in both developed and developing countries. This report surveys existing practices and documents some of the experience to date with the changing regulatory environment in both developed and developing countries. It is a first step by the Bank in identifying a new approach to power sector regulation in developing countries.

TABLE OF CONTENTS

Page No.

1.	EXECUTIVE SUMMARY.....	1
	Summary of Principal Recommendations.....	4
2.	STUDY OBJECTIVES AND SCOPE.....	6
	Approach to Review of Regulatory Experience.....	6
	The Bank's Current Policy.....	6
	Need for Reform of Power Sector Regulation.....	7
	Structure of the Report.....	8
3.	OVERVIEW OF POWER SECTOR REGULATORY ARRANGEMENTS IN DEVELOPING COUNTRIES.....	10
	Past Experience.....	10
	Evolution.....	11
	Main Features of Regulatory Arrangements in the Countries Reviewed.....	13
	Existing Framework.....	13
	Mechanisms for Administering Regulatory Policies.....	15
	Ownership of Power Facilities.....	16
	Evolution of Sector Organization.....	16
	Scope and Extent of Competition in Power Supply.....	17
	User Rights and Obligations.....	17
	Concentration of Supply in the National Power Market.....	18
	Supervision, Responsibilities, Composition and Resources of Regulatory Bodies.....	18
	Coordination of Sector Institutions.....	18
	Involvement of Regulatory Bodies in Environmental Affairs.....	19
	Level of Government Involvement in Sector Policies on Personnel, Operations and Investment.....	19
	Incentives to Improve Sector Efficiency and Attract Private Sector Involvement.....	20
	Composition, Appointment, Powers and Duties of Board of Directors.....	22
	Degree of Autonomy of Utilities.....	23
	Definition and Enforcement of Utility Accountability.....	23
	Social and Economic Criteria Used in Setting Policies on Power Sector Regulation.....	24
4.	DEVELOPING COUNTRY EXPERIENCE WITH VARIOUS TYPES OF REGULATORY ARRANGEMENTS.....	25
	Correlation with Sector Performance and Characteristics of Successful Regulatory Arrangements.....	25
5.	PRIVATE SECTOR PARTICIPATION IN POWER SUPPLY.....	29
	Forms of Private Sector Participation.....	29
	BOOT Projects.....	31
	Experience in Developing Countries.....	32

TABLE OF CONTENTS (Cont'd)

Page No.

6.	ISSUES FOR REFORM OF POWER SECTOR REGULATION.....	35
7.	WORLD BANK'S IMPACT ON REGULATORY REFORM.....	38
	Bank's Role in Private Sector Development.....	38
	Bank Review of Work on Private Sector Development.....	38
	Regulatory Covenants in Recent Bank Power Loans.....	39
	Options for Bank Policy on Regulation.....	40
	Recommendations for Further Development Work.....	43

ANNEXES

1	List of Countries Reviewed under the Study.....	46
2	Summary of Main Features of Regulatory Arrangements in Africa.....	47
	Summary of Main Features of Regulatory Arrangement in Asia.....	51
	Summary of Main features of Regulatory Arrangements in Europe, Middle East and North Africa.....	57
	Summary of Main Features of Regulatory Arrangements in Latin America and the Caribbean.....	63
3	Regulatory Experience and Private Sector Participation in the Indian Power Sector.....	69
4	Review of Experience with Private Sector Participation in Developed Countries.....	74
	The Electricity Supply Industry in the USA Since the PURPA Legislation of 1978.....	75
	Privatizing the UK Electric Power Industry.....	78
	The Corporatization Approach in New Zealand.....	83
	Public Sector Reform in Australia and Its Impact on the New South Wales Electricity Supply Industry.....	86
5	Ongoing World Bank Assistance for Power Sector Regulatory Reform.....	90

APPENDIX

	Main Features of Regulatory Arrangements in Developing countries Reviewed.....	94
--	---	----

GLOSSARY OF TERMS

Accountability

The process by which the performance of boards, managers and organizations is measured. It takes place through reporting and audit processes.

Affirmage

A partnership arrangement between a government and a foreign firm for management of a public utility.

Autogeneration

See self-producers.

Autonomy

In the power sector, this means competent management preferably with separation of the board of directors (policy) and management (execution); financial independence especially for formulating investment-plans and pricing policies; power to set wage levels, appoint and dismiss staff; a separate accounting system (accrual basis); legislative power over consumers who default and primary responsibility for procurement.

Avoided costs

Costs that a utility can avoid or save by purchasing power from other sources. They are represented by marginal energy and capacity costs.

BOOT or BOT projects

Build-own-operate and transfer projects or build-own and transfer projects normally financed and arranged by private investors.

Buy-back rates

The price a utility pays for power supplied to it by privately-owned plants.

Captive plant

Non-utility generation plant owned and operated primarily for the owner's use.

Cogeneration

The production of electricity from privately-owned plants for own use and sale to the grid.

Competition

Where more than one source of supply creates the opportunity for market forces to influence the cost of service.

Competitive Neutrality

The creation of equal competitive opportunity for producers in the same industry.

Commercialization

The conduct of business activities based on commercial principles as regards accounting standards, market discipline, pay scales, payments of taxes and dividends, etc.

<u>Concession</u>	A contract under which a public body assigns to a private party the task of operating a public supply function.
<u>Corporatization</u>	The treatment of a publicly-owned enterprise as a company or corporation operating on commercial principles, i.e. as would be applied to a privately-owned business. It would be permitted to issue shares to the public.
<u>Corporate Intent</u>	The establishment or statement of corporate objectives, goals and performance targets developed from a corporate or strategic plan.
<u>Decentralization</u>	The transfer of control from central to dispersed administrative units.
<u>Deregulation</u>	The reduction in the role of regulatory bodies by reducing the need for or simplifying the regulatory framework.
<u>Diversified systems</u>	Systems which permit public and private ownership arrangements to operate together.
<u>Fixed fee contract</u>	A contract for services at a pre-determined fixed price.
<u>Incorporation</u>	The legal processes involved in establishing a corporate entity.
<u>Limited recourse financing</u>	The provision of loans based on assessment of project risks and cash flows to a borrower without a public guarantee.
<u>MIS</u>	Management information systems; systems which provide information to management to facilitate decision making.
<u>Non-utility generation</u>	Electricity generation plant which is owned and operated outside the public supply system.
<u>Performance contract</u>	An arrangement whereby the contracted party agrees to meet specific performance criteria.
<u>Privatization</u>	The transfer of ownership from the public to the private sector.
<u>Private generators</u>	Power plant owned, operated and financed by the private sector.

Private participation

The involvement of private sector parties in a public-sector corporation through financing, sale of assets, contracting, joint ventures, leasing, equity investment etc.

Quasi-nationalized

Where a government assigns responsibility for operation of an activity to a national organization but permits some of those activities to be undertaken by other entities.

Self-producers

Power plant producers who generate power for their own use.

Stand-by or back-up power

Emergency power provided to a self-producer when their own plant is not operating or able to meet their own requirements.

Twinning agreement

contractual arrangement for one utility to provide training services to another.

1. EXECUTIVE SUMMARY

1.01 There is world-wide interest in improving public enterprise efficiency and this is attracting the interest of governments in reform. The difficulty that many governments are experiencing in obtaining adequate funds for financing expansion programs and the high cost of those funds are accelerating interest in private sector participation and deregulation. The objectives of this study are to identify the issues for reform of regulatory structures of power sectors in developing countries and the options for Bank policy to promote sound reforms. The report does not seek to prescribe how the power sector should be regulated or who should regulate it. Follow-up research into alternatives to the traditional approaches to power sector regulation are proposed.

1.02 Issues have been identified by reviewing the experience with a variety of regulatory regimes for power sectors in 22 developing countries. The main features of the regulatory arrangements in the countries reviewed is provided in an appendix to the report.

1.03 Current policies of the Bank for the power sector (see OMS 3.72) seek the formation of a clear framework between the Government and the utility covering Government obligations to the utility for budget authorizations, access to foreign exchange, taxation, duties and anticipated borrowings. Responsibility for these functions is often spread among several specialized government agencies with power to regulate these matters for all sectors of the economy. Government regulation of prices is usually not negotiable but autonomy in financial and personnel matters is considered important for operational efficiency. A recent review of World Bank lending for electric power ^{1/} concluded that there was a need for greater efficiency in the power sector. Interest in deregulation and greater private sector participation were seen as a means of improving performance.

1.04 The Bank's effectiveness in power sector regulation in recent loans is reviewed. It is noted that few covenants directly addressing regulatory issues have been included in Bank loans until recently, i.e., in the last 3 years. The Bank has instead preferred to concentrate on strengthening the borrowers' institutional capacity to ensure successful project implementation. Recent Bank loans however, contain an impressive range of initiatives aimed at improving regulation, but it is too early to gauge their impact.

1.05 The main types of sectoral arrangements that have existed over the last half century are identified i.e. French/British colonial system, nationalized systems, quasi-nationalized systems and diversified systems. The various forms of organization and the special characteristics of each are then discussed. The predominant arrangements found were nationalized systems operated through government-owned corporations, statutory bodies, commissions

^{1/} A Review of World Bank Lending for Electric Power-Industry and Energy Department Working Paper No. 2, March 1988.

or boards. Foreign management arrangements for electric utilities reviewed include concessions, affrimage, management performance and fixed fee contracts.

1.06 The report notes that little attention is given in Bank staff appraisal reports (which were the primary source of information contained in this report) to the legislative framework of power sector entities, and it recommends that a more systematic focus should be given to the adequacy of legislation and regulations in future operations so that the current lack of data can be progressively overcome.

1.07 One aspect of regulatory mechanisms identified in the report is the proliferation of ministries and other government agencies that are involved in regulating the sector. They are often poorly coordinated. In depth reviews of the institutional arrangements are in progress in Brazil and Indonesia because governments see the need to decentralize decision making and reduce controls.

1.08 The perception that the electricity industry is a natural monopoly and that competition is not appropriate is changing. Competition, especially in generation, has been found feasible and efficient and is being encouraged. However, up to now privately-owned plants are still being operated largely for owners' use. In a number of countries, notably Chile and Pakistan, the regulatory environment is being changed to foster cogeneration and private sector developments. In other countries such as India, Indonesia, Costa Rica, Jamaica, Turkey, Brazil and the Philippines non-utility private generation is being encouraged with assistance from USAID

1.09 An important conclusion of the study is that there are many countries where the governments are not satisfied with present regulatory arrangements and are looking at alternatives. A new direction in power sector regulation may be more appropriate than maintaining pressure for increased utility autonomy. Separation of the dual roles of governments as regulators and stockholders is necessary. Different agencies should perform these roles. Governments are considering ways in which the sector can be decentralized and made more efficient. By far the most important development for the sector as a whole is the focus on private sector participation and the regulatory changes needed to encourage such participation. Most of the countries reviewed are contemplating or have already begun projects with private sector involvement in some form. There is as yet only limited evidence that private sector involvement will provide the volume of funding needed for power development. The main objective should be to improve sector performance in line with country development (not privatization, per se).

1.10 A summary of the USAID role in the Indian power sector in encouraging non-utility private generation is provided in Annex 3. The Government of India in response is preparing a white paper on private sector regulation. Special mention is made of the proposed Institution Development Review planned in Indonesia and the Bank's recent involvement in establishing a fund to facilitate private sector power developments in Pakistan.

1.11 The trends and forms of private sector participation are reviewed. Annex 4 details the experience with privatization in USA, UK and New Zealand

ard Australia. The Bank should continue to monitor these developments to see how they modify future regulation in each case. Options for future policy on regulation highlight particularly the need for a more active approach by the Bank to assist borrowers and to consider options of commercialization and corporatization as well as private sector participation. Corporate planning and performance measurement should receive more widespread support, as should also trends away from nationalization and toward decentralization. Private management of utilities should be given more consideration, especially in Africa. Privatization is a complex process and can involve many different routes.

1.12 Recommendations for further research are made, especially for closer cooperation with USAID and IFC. It is suggested that an issues paper should be prepared as the basis for discussion of Bank policies on power sector regulation with the objective of identifying strategies which the Bank should adopt to assist its borrowers with regulatory problems. Subsequently model agreements and regulations could be prepared and issued as Bank guidelines. Monitoring of existing operations would also be particularly valuable, especially the establishment of the Energy Development Fund under the Bank's Power Sector Energy Development Project in Pakistan and the Institutional Development Review in Indonesia.

Summary of Principal Recommendations

- (i) The Bank should give greater attention to the adequacy of legislation and regulation under future power sector lending if it is intended through these operations to seek better regulation (para. 3.17).
- (ii) It would be inappropriate for the Bank to seek to prescribe a single set of regulatory arrangements as a model for all borrowers but some broad principles for guidance need to be established (para. 4.02).
- (iii) An issues paper should be prepared for discussion within the Bank for the purpose of preparing a Bank guideline on recommended treatment of issues arising from private sector involvement in the power sector (para. 6.11).
- (iv) Before urging privatization on governments, the Bank should thoroughly explore the extent to which commercialization and corporatization options have been fully developed (para. 7.10 (c)).
- (v) Establishment of corporate plans and performance measures (or contract plans or management performance plans) agreed with government should be further encouraged by the Bank. However, to facilitate performance measurement, it is necessary to have in place an effective management information system (MIS) including adequate budgetary, accounting and reporting systems (para. 7.10 (e)).
- (vi) The Bank needs to strengthen conditionality regarding sector lending but it should not seek regulatory covenants which it is not prepared to enforce during project implementation. It would be more effective to seek and obtain regulatory improvements prior to project appraisal (para. 7.10 (d)).
- (vii) The Bank should focus more systematically on regulatory issues so that the current lack of data is progressively overcome (para. 3.09).
- (viii) In the African region, the Bank should focus institutional development efforts on the utilities rather than the regulatory agencies in the government (para. 3.30).
- (ix) Where governments have been unable to develop efficient nationalized power corporations in countries such as sub-Saharan Africa despite the Bank's assistance, then it may be appropriate to consider private management arrangements (para. 7.10 (g)).
- (x) The Bank should draft model agreements and documentation to assist Bank staff in advising governments on private sector participation e.g. BOOT projects. Study of the Turkey model would be useful for this purpose (Para. 5.09).

- (xi) The Bank should continue to monitor and evaluate:
- (a) the privatization efforts of governments in the USA, UK, New Zealand and Australia to see how they modify their regulatory arrangements (para. 5.06).
 - (b) the effectiveness of the contract plan recently agreed in Morocco and the committee for monitoring performance of the sector utilities in Colombia (para. 3.32); and
 - (c) the experience in Pakistan and elsewhere in private financing of power projects (para. 3.39).
- (xii) Training programs and seminars should be developed to assist Bank staff understanding of new approaches and concepts discussed in this report (para. 7.10 (h)).
- (xiii) Recommendations for further development work are detailed in paras. 7.11 to 7.16.

2. STUDY OBJECTIVES AND SCOPE

2.01 The objectives of this study are to identify the issues for reform of regulatory structures of power sectors in developing countries and the options for Bank policy to promote sound reforms. It is to identify follow-up research into alternatives to the traditional approaches to power sector regulation. The report does not attempt to prescribe how the power sector should be regulated or who should regulate it. It does attempt to describe how regulation has worked and to identify those features and characteristics which have contributed to successful regulation. This study forms part of the background work to the preparation of a power sector working paper by the Energy Development Division in the Industry and Energy Department (IENED).

2.02 This study complements other ongoing work on power sector regulation under World Bank auspices. It is intended to pull together work-in-progress throughout the Bank on these issues and to identify gaps in current research.

Approach to Review of Regulatory Experience

2.03 Issues have been identified by reviewing the experience with various regulatory regimes for power sectors in developing countries in terms of the correlation between regulatory characteristics and overall sector performance; and by examining recent experience with private sector involvement and privatization of power facilities.

2.04 The proposed options for Bank policy are based on examples of good regulation identified in the review of experience and from new developments in sector regulation concerning the role of public utilities and the participation of private sector investors, covering both developed and developing countries.

The Bank's Current Policy

2.05 The Bank's Operational Manual Statement OMS 3.72 requires that borrowers in the power sector have competent and responsible management, financial independence, control over personnel, suitable accounting systems, an appropriate legal basis for operations and responsibility for procurement. Further guidance to staff is given in a sector operations directive issued in 1987. This proposes that the relationship between the Government and the utility be embodied in a statute, legislative charter, concession or administrative regulation. A 2-5 year program agreed between the parties is recommended which sets out the government's obligations to the utility in the form of budget authorizations, access to foreign exchange, taxation and duties and anticipated borrowings. It should also cover the utilities obligations to Government and consumers. Few Bank loans have incorporated a program contract of the form proposed in the Bank's OMS. One project which did include such an agreement was the recent Public Enterprise Rationalization Loan to Morocco. This incorporated procedures for oversight of the utility's operations and a three-year Corporate Plan including agreed performance targets and actions. However, given the extreme uncertainty about borrowings, exchange rates and budget outlooks for most governments, it is not reasonable to expect 3-5 year commitments by most governments to utility programs.

2.06 Other points of relevance to regulation made in the directive are:

- * Government regulation of prices is usually necessary whether supply is provided by public or private entities. However, such regulation should be made subject to a limited number of automatic adjustment clauses to cover circumstances outside a utility's control (e.g. exchange rate changes).**
- * Autonomy in financial and personnel matters is important for operational efficiency.**
- * Government entities are usually subject to regulations concerning procurement and authority to commit resources. These are often inconsistent with autonomy sought by the Bank.**

Need for Reform of Power Sector Regulation

2.07 A Review of World Bank Lending for Electric Power (para. 1.03) which covered power projects financed by the Bank from 1965 to 1983 was issued in March 1988 by the Industry and Energy Department. Its purpose was to assess the performance of institutions, identify factors affecting performance and make recommendations for improvement.

2.08 An important conclusion from the review is the need for greater efficiency in the power sector. Further it suggested that there had been a decline in sector performance in recent years which was related to the growth of very large government controlled electric utilities. Many of developing countries were perceived to be using the power sector more as a vehicle to address social equity, employment issues and improving the quality of life rather than as a commercial enterprise designed to deliver its services at optimum efficiency.

2.09 These concerns about the efficiency and performance of the sector have created interest in decentralization and greater private sector participation as a means of improving performance. The report proposed that rather than retaining an outdated framework, other options should be evaluated. Measures were needed to deal with recurring problems of poor performance and for creating of incentives for technical, financial and managerial efficiency. Clear-cut government policies and guidelines were considered necessary for:

- * Utility management.**
- * Delegation of authority to implement policies.**
- * Accountability.**
- * A rational regulatory framework.**
- * No interference by Government in daily activities.**
- * Access to capital.**

Structure of the Report

2.10 This report is based on a detailed analysis of regulatory arrangements in twenty-two developing countries listed in Annex 1. The resulting analysis is provided as an Appendix to the main report, a summary of which is shown in Annex 2. The gaps in the information obtained reflect the lack of in-depth information on the legislative and regulatory arrangements available in Bank reports for most of the countries reviewed.

2.11 An overview of power sector regulatory arrangements is contained in Chapter 3. It first systematically identifies some of the factors that have led to the evolution of regulatory structures over the past 30 years, including changes in the roles of the public and private sector organizations. The main features of regulatory arrangements in use in the twenty-two developing countries reviewed are then described including the effects of social and economic criteria used by governments in setting those policies on power sector regulation. New developments in the regulatory environment of the countries are discussed. Lastly, the chapter deals with the present changing role of the private sector in power developments in developing countries.

2.12 Chapter 4 focuses on developing countries experience with various types of regulatory arrangements. It identifies the principle characteristics of effective regulatory regimes that have historically been associated with good sector performance.

2.13 The various degrees and forms of private sector participation are identified and reviewed in Chapter 5, including build own operate and transfer (BOOT) arrangements. It draws on the experience of USAID-sponsored workshops conducted in the Indian power sector during 1987. The conclusions and recommendations of this experience are summarized and discussed in Annex 3. The chapter also refers to new developments in regulation and the participation of private sector investors in some developed countries: USA, UK, New Zealand and Australia. These are set out in Annex 4. Lastly, the experience of the developing countries with private sector participation is documented.

2.14 Issues for power sector regulation which have been drawn from current experience in both developed and developing countries and documented in this report are discussed in Chapter 6. It includes analysis of the key regulatory issues arising from private sector involvement.

2.15 Chapter 7 assesses the Bank's impact through its assistance on regulatory reform and the extent to which the assistance objectives have been met. A list of regulatory covenants identified from Bank loans for the power sector in recent years is used as the basis for this assessment. There follows a summary of comments on regulatory reform from recent Bank sponsored publications of its lending experience in power and with public enterprises in general. Suitable options for Bank policy to promote reform of power sector regulation in developing countries are identified, particularly to improve sector efficiency and mobilization of investment resources. These distinguish between different categories of developing countries based on the findings of the review of experience set out earlier in the report.

2.16 Finally, recommendations are made for further research by the Bank, including information gathering to develop and test options for Bank lending policy. This is based on a review of the extent and adequacy of ongoing research work on regulation, particularly with Bank involvement. New approaches to regulation that may be suitable for development with Bank technical assistance are also identified.

3. OVERVIEW OF POWER SECTOR REGULATORY ARRANGEMENTS IN DEVELOPING COUNTRIES

Past Experience

3.01 Hugh Collier 2/ in his book reviewing Bank experience over 30 years in power sector lending, made some relevant observations on regulatory reform:

- * "There is no generally agreed best method of organizing a country's power sector. Some regulatory agency is needed with enough authority to ensure that the sector is operated and its expansion planned as a system. Such an agency may be part of a government ministry or established separately for the purpose."

3.02 In commenting on public enterprise reform Messrs. Baum and Tolbert in their book "Investing in Development - Lessons of World Bank Experience" 3/ make some useful observations:-

- * "The most appropriate role for government is to set the broad strategies and policy directives for public enterprises and then as far as possible to hold them publicly accountable for their performance."
- * It is important to tailor public ownership to the management capacity of the public sector.
- * At the level of individual enterprises - reforms are needed in management, employment conditions and incentives, operational autonomy and the competitive environment.
- * Agencies that supervise state enterprises should be strengthened through improvements in information systems measuring performance of enterprises.
- * Curtail direct state ownership where public enterprises are least effective.
- * Regulate the relationship between Government enterprises with a contract plan setting objectives giving managers more autonomy but holding them publicly accountable for the results.
- * Absence of competition requires that regulatory agencies be strengthened and their methods of supervision improved.

2/ See Hugh Collier "Developing Electric Power - Thirty Years of World Bank Experience" (Baltimore MD. John Hopkins University Press, 1984) Chapter 1.

3/ See Warren C. Baum and Stokes M. Tolbert, "Investing in Development - Lessons of World Bank Experience" (Oxford University Press, 1985) Chapter 23.

- * Action is also needed to improve management at the enterprise level, degree of autonomy, accountability and incentives and strengthen boards of directors.
- * Government should consider contracting out particular activities; leasing arrangements and management contracts and where appropriate outright sale to private interests.

3.03 The current review of regulation of the power sector has not revealed any need to modify any of the above observations. The actions of government, however, in developed countries are creating more focus in developing countries on decentralizing utility functions and changing regulations to encourage private sector participation.

Evolution

3.04 The evolution of regulatory arrangements in developing countries has been greatly influenced by those in developed countries, and particularly by those countries which have had a role in the development of public utility institutions. Regulation based on the French or Anglo-Saxon code or American Law all reflect the concept of electricity supply being a public concern. As such political and administrative authorities have intervened to control electric utilities through a wide variety of complex laws and regulations. Many of these laws date back sometimes more than 40 or 50 years. In many cases there is a hierarchy of laws, regulations, decrees and decisions issued by the legislature, the head of state, ministers and regulatory bodies. In some countries there are federal and state laws which add to the complexity of utility management. For the purposes of this study, the entire legal framework surrounding the conduct of the electricity industry will be considered to be part of the regulatory arrangements.

3.05 The main types of sectoral arrangements that have existed over the last half century have been:

(a) French/British Colonial System

Supply was subject to a web of rules and regulations under a licence or concession arrangement. This usually assigned the rights to build and operate the power system for a fixed period of years to a private company. The responsibilities of the utility and the general financial principles under which it was to operate were set out in the concession agreement. The Government's role was limited to regulation, authorization and control of electricity undertakings with no involvement in operations.

(b) Nationalized Systems

Electricity departments or corporations are responsible for generation, transmission and distribution and are controlled by a national central body. This system is typical of industrialized developed countries based on market economies e.g. UK.

(c) Quasi-nationalized Systems

Responsibility for generation, transmission and distribution is assigned to a publicly-owned single organization but independent producers, cogenerators and self-producers are permitted to operate. Distribution functions are often undertaken by municipalities, cooperatives or private companies. In fact, in many cases, only generation and transmission operations are retained by the national organization e.g. EdF in France.

(d) Diversified Systems

Arrangements where federal and state undertakings, public companies, cooperatives and private companies are responsible for various electricity functions in particular regions e.g. USA.

3.06 Under the above arrangements, various forms of organization have developed:

- (a)** Government departments or administrative units that are federal, state or municipal.
- (b)** Public authorities, corporations, statutory bodies, commissions or boards.
- (c)** Private corporations owned by shareholders based on licenses and concessions.
- (d)** Semi-public undertakings with a mix of public and private ownership.
- (e)** Industrial self-producers who produce power for their own use and sell surplus power to the grid and depend on the public system for backup.
- (f)** Cooperatives which are by nature private bodies.

3.07 Each of these forms of organization has special characteristics which affect the extent of regulation and control by Government Departments have no separate legal existence, depend on public budget funds, have no autonomy, operate under Government accounting rules and offer civil service pay and conditions. Public corporations and the like on the other hand have a separate legal existence, their own board of management, some financial autonomy and operate on commercial lines. Often private corporations are subjected to strong regulation and controls but seek an adequate return on invested funds. Semi-public undertakings aim to combine commercial management methods with continuing public involvement. Cooperative arrangements are generally only suitable for distribution activities and are run for the benefit of members.

3.08 A variety of alternative arrangements for private management of electricity undertakings has emerged apart from licences and concessions which have already been mentioned (para. 3.06(c)):-

- (a) Affirmage contract - partnership between Government and usually a foreign firm.
- (b) Performance contract 4/ - private organization agrees to meet specific performance criteria under a management contract.

(Sometimes "utility twinning" is used under performance contracts to gain useful assistance from a consulting utility).
- (c) Fixed Fee contract - expatriate managers, usually consultants, are appointed with specific performance required.

Because competition has been limited, most public utilities have traditionally been operated as monopolies. This situation has become more pronounced in many developing countries following their independence, especially where nationalization has occurred.

Main Features of Regulatory Arrangements in the Countries Reviewed

3.09 This study is based on a review of regulator arrangements in twenty-two developing countries. The detailed information obtained for each country is included in an Appendix to this report. A summary is provided in Annex 2. The quality and extent of the information collected varies from country to country. However, there are gaps reflecting the dearth of information available. This in particular was found on legislation (para. 3.16), scope and extent of competition (para. 3.21), user rights and obligations (para. 3.26), and characteristics of regulatory bodies (para. 3.28). In many instances the regulatory and legislative framework is given very little attention in Bank documents and reports, indicating that Bank staff tend to place limited emphasis on regulatory aspects. In other cases, because there have been several previous loans made, it may be that it has been assumed that sector regulation is unchanged. It is recommended that the Bank should focus more systematically on regulatory issues so that the current lack of data is progressively overcome. Greater focus on power sector regulatory functions could be a means of improving the current poor performance in the power sector in many developing countries.

Existing Framework

3.10 The predominant organizational form is that of the publicly owned and controlled corporation: - a board, authority or statutory body. In general, these corporations are nationalized and operate as monopoly enterprises. Interestingly there are no cases among the countries reviewed where the power sector is currently operated as a government department or as a wholly private corporation.

4/ Detailed procedures for performance contracting are set out in an IEN Working Paper (No. 4 of May, 1988).

3.11 A wide variety of organizational arrangements were found to exist, each Bank region having some particular characteristics. In the African countries reviewed, in each case there is a single public corporation responsible for generation, transmission and distribution. Ivory Coast operates under a concession agreement, Senegal has a management performance contract, and Guinea-Bissau has been considering an affirmage arrangement. The power systems in these countries are quite small compared to other regions and have generally been characterized by financial, operational and management problems.

3.12 In the larger countries of Latin America, holding companies such as CORFO in Chile and ELETROBRAS in Brazil have been established as owners of federal utilities and as sector development banks. There is a large number of state and municipal utilities in Brazil and Colombia which have been very difficult for the Government to coordinate and control. In Chile, the Government has been conducting an orderly process of divestiture in the power sector to increase the level of private ownership. Separate entities are being established for new development projects with private sector equity participation encouraged. In the Caribbean/Central American countries the national power utility in Jamaica (JPS) operates under licence, and in Costa Rica the influence of the USA can be seen in the development of electricity cooperatives.

3.13 The Asian region is characterized by very large national power corporations such as PLN (Indonesia), NPC (Philippines) and KEPCO (Korea). A concern is growing that these organizations are becoming too large to finance and manage the expected continued rapid expansion in their systems. This is especially so in Indonesia and Bangladesh. The power sector corporations in the region are responsible for generation, transmission and distribution except in Indonesia, Thailand and the Philippines. In India the State Electricity Boards, which are very large in their own right, are responsible for operation of the system. However, construction of large plants in India has been funded and coordinated in recent years through national corporations. The Bank has been instrumental in establishing the National Thermal Power Corporation (NTPC). In the Philippines, distribution of electricity has been extended through the development of cooperatives, except in Manila where distribution has been managed by a privately-owned utility.

3.14 In the EMENA countries most of the power corporations do not have responsibility for distribution. In Jordan, Turkey and Pakistan separate utilities owned by the Government have specific distribution functions in a city or region. In Morocco, responsibility for distribution in urban areas is through a separate Ministry - the Ministry of Interior and Information. In Turkey, two companies which are owned by the Turkish Electricity Authority (TEK) operate under concession arrangements namely CEAS for generation and KEPEZ for distribution. There are two semi-private distribution companies in Jordan operating under concessions. Poland has a highly centralized system coordinated by the Power and Lignite Board (WEWB) with about 100 separate power enterprises constructing and operating the system.

3.15 The power sector is dominated by nationalized systems in the African countries. The influence of the old colonial systems is still present, particularly in Guinea-Bissau, Ivory Coast and Senegal. The best examples of

diversified systems are found in India, Chile and the Philippines, but they exist only in a limited way since the Government's role still predominates. The dearth of quasi-nationalized or diversified systems reflects the mood of the energy crisis years during which Governments continued to nationalize and exercise strong control over the industry. This is now changing, influenced by trends in developed countries such as USA and UK. This mood is encouraging privatization in developing countries especially in Chile (para. 5.18), Pakistan (para. 5.16), Turkey (para. 5.17) and Philippines (para. 5.14). However, the existing regulatory arrangements are entirely inappropriate in that they do not encourage such development and in some cases inhibit it. Further research by the Bank would be valuable to identify key regulatory changes needed in countries wishing to attract private sector investment in power plants with Bank assistance. These are discussed in para. 7.11.

3.16 Information on the legislative framework is another aspect which receives little attention in Bank staff reports. Copies of the relevant legislation were unobtainable for most of the countries reviewed. Exceptions to this were India, Kenya, and Zimbabwe. For several of the countries, no reference to any energy legislation could be found in project appraisal reports.

3.17 It was not intended in this study to conduct a detailed review of the legislative framework of the power sector for each country. This is normally done by Bank staff as part of the project appraisal process. It is recommended that the Bank give greater attention to the adequacy of legislation and regulations under future projects if it is intended through those projects to seek better regulation.

Mechanisms for Administering Regulatory Policies

3.18 In all but two of the countries studied, a central ministry has responsibility for electric power. Such ministries typically include energy within their portfolio of responsibilities along with minerals and/or water resources. In Poland and Ivory Coast electricity is placed under the Ministry of Industry. In the Philippines the Ministry of Energy has been abolished and replaced by an Office of Energy Affairs reporting to the President. In the case of Morocco, two ministries are responsible; the Ministry of Energy and Mines for the National Electricity Authority (ONE) and the Ministry of Interior and Information for the entities which distribute power in urban areas (the Regies). This arrangement has not been very effective due to conflicts between the two ministries. The variety of arrangements found suggests that responsibility for the electric power industry is being assigned to the Ministry which best suits the political and organizational needs of governments. The best arrangement is probable to have electric power as part of a Ministry of Energy and this seems to be most favored.

3.19 Within the ministry responsible for electricity it is common to have a directorate, department or division that regulates the power sector. In Morocco, the Bank has proposed a technical committee be set up to coordinate ONE and the distribution entities. A supervisory board under the Director-General of Electric Power has been established in Indonesia to oversee PLN's operations and review its investment plans and tariffs. A Government Enterprise Management Council in Korea looks at management policy and

performance. Performance contracts (or contract plans) have been established between power utilities and governments in Morocco, Guinea-Bissau, Senegal and Ivory Coast. Colombia has agreed with the Bank to set up an energy board and a committee for monitoring the performance of sector companies. A performance improvement plan has been agreed between Government and the utility in Bangladesh.

3.20 One aspect of regulatory mechanisms of concern is the proliferation of ministries and other government bodies that are involved in such matters as approval of investment plans, tariff increases, provision of finance and establishment of policies. Their activities limit the autonomy of power corporations and of the ministry and bodies regulating the sector. In some countries such as Brazil they have tended to dilute the role of coordinating bodies such as ELEKTROBRAS in Brazil. It is possible that this is the source of many of the problems identified in the recent review of Bank lending (para. 2.07) affecting the performance of the power sector in many developing countries. A policy of decentralization (para. 5.18) in Chile is one approach that has been adopted so far quite successfully to reduce over-regulation.

Ownership of Power Facilities

3.21 The national utilities in all but three of the twenty-two countries reviewed are virtually all publicly-owned by Government. The state electricity boards in India, the state utilities in Brazil and municipal utilities in Colombia are also publicly-owned. The only significant private ownership in national utilities is found in Kenya (40% of KPLC) Chile (almost 100% of Endesa) and Ivory Coast (8% of EECI). In many of the countries reviewed, there is significant private generation from captive plant for the owner's use. There are also electricity cooperatives which are privately-owned in the Philippines and Costa Rica.

Evolution of Sector Organization

3.22 The historical changes in the structure of the power sector have mostly taken place following changes in governments. In most developing countries, the changes of greatest significance have followed their independence. The dominant tendency has of course been toward nationalization and the reduction or in many cases the elimination of most forms of private ownership and control. This was often because of concern that private utilities were exploiting their monopoly position. Operators with franchises, licenses or concessions often had no incentive to contain costs and increase efficiency if they could pass on all cost increases and inefficiencies.

3.23 The energy crises of the 70's and the consequential sharp increases in prices followed by the slowdown in growth in many countries led to surplus capacity and serious financing problems. These factors severely undermined the institutional autonomy, operational efficiency and financial health of the power sector, features that have stubbornly persisted in many countries. In some cases these encouraged governments to seek changes in the existing set-up via new forms of regulation, sometimes without proper guidelines and ideas of how to do it. This has been reflected in the establishment of government bodies for tariff regulation, better accountability, approval of investment programs and priorities, and raising of finance. The establishment of the

latter in Colombia and India reflects the current crisis in obtaining funds for power sector investment. However, this growth of government agencies around the power sector has established a web of regulation under the existing structure that is stifling decision making.

Scope and Extent of Competition in Power Supply

3.24 Until recent developments in the USA and UK (see Annex 4) which have led to increased private sector participation or the potential for it, competition has been limited world-wide in the power sector. Most governments have regarded electricity supply as being a public concern and tariffs as being tools for meeting their social objectives (para. 2.08). Price increases have been highly sensitive politically because Governments perceive that they contribute to inflation and impact adversely on their electoral standing. This has led to suppression of increases and extensive cross subsidies.

3.25 The electricity industry has been characterized as a monopoly industry and it has been generally accepted that competition was not the most appropriate mechanism available to guide sector development. This perception is changing, and recent events in both developed and developing countries have encouraged competition particularly in generation. Transmission and distribution are still seen to be monopolies. However most privately owned plant is run for the owner's use and not for sale to the grid, and until pricing policies are adopted which are based on marginal costs that reflect the utilities avoided costs, and give private producers incentives to sell to the grid cogeneration will not become a major source of competition for utilities. For this to happen, it is necessary for prices being offered by utilities to provide incentives to both private generators and utilities for fair exchanges to occur. In Chile, where realistic pricing policies have been adopted and the government regulates prices principally for the distribution companies, a climate for fostering cogeneration and private sector development has been established. Similarly in Pakistan, the regulatory environment is being changed with the Bank's assistance to encourage competition and provide sector financing for generation projects (para. 5.16). Several other developing countries are interested in moving in the same direction, notably Indonesia and Thailand. USAID is also encouraging such changes particularly in India, Pakistan, Philippines and Costa Rica (para. 5.10).

User Rights and Obligations

3.26 More research on the countries studied is needed to provide a clear definition of user rights and obligations. This is a particularly important aspect especially for controlling technical and commercial losses which in many developing countries are significant. Utilities cannot absorb such losses and continue to remain viable unless the regulatory environment permits these losses to be passed on to consumers. One example is provided by Colombia where utilities absorb large losses from non-payment of accounts by consumers because of the difficulty in enforcing consumers obligations to pay. Another area of interest is the right of consumers to purchase direct from private suppliers or cogenerators. Where such an opportunity exists and is permitted by law, competition could be established with the public system, but this raises the conceptually difficult issue of "wheeling of power", pricing. Many utilities and governments are unwilling to permit such

competition. Further research on user rights and obligations to identify strategies on which the Bank might advise its borrowers would be worthwhile.

Concentration of Supply in the National Power Market

3.27 In the U.S.A., the relationship between the industry and the consumer is well-developed. In fact some critics may consider that there is excessive public involvement in the U.S.A. However, elsewhere the relationship and inter-action between the industry and consumers is limited. Where competition among generators is now occurring and private equity capital is being attracted, utilities are likely to face greater pressure to provide better information both operational and financial. This is likely to put pressure on the industry for reform. In many of the countries studied information is scarce on the extent of power shortages, the amount of private generation provided for own use, the degree to which residential use is suppressed by prices and willingness of industrial users to pay more for greater reliability or increased supply. Such information would reveal more meaningful information about the concentration of supply, particularly the extent to which the real needs of the market are being met. It would identify the opportunities and need for additional capacity. Shortfalls in supply are known to be a significant cause of lost productivity in many countries, particularly in China and India.

Supervision, Responsibilities, Composition and Resources of Regulatory Bodies

3.28 Very little information is provided in appraisal reports or sector studies on regulatory bodies. They are usually identified along with a reference to their major function. There needs to be more description of how these agencies interact and coordinate, and to what extent their approval processes are delaying or assisting the development of new projects or improving accountability and performance. The Bank should encourage improvement in regulation by making an effective input to sector development, and giving more emphasis to it in Bank appraisal and sector work. The proliferation of regulatory agencies may be hindering rather than enhancing financing of power sector development especially if the utility has to obtain approvals from a variety of government agencies each regulating a different aspect, e.g. finance, budgets, investment plans, tariffs and environmental matters.

Coordination of Sector Institutions

3.29 Coordination of agencies within the power sector is also a growing problem for government authorities. The growth in the number of central agencies involved in regulation has already been mentioned. Actions by Governments, often with the support of the Bank, have included:

- (a) Establishment of regional electricity boards in India to coordinate the State Electricity Boards.
- (b) The Government has agreed to set up a technical committee in Morocco to coordinate ONE and the Regies.

- (c) An energy board has been established in Colombia to monitor utility performance.
- (d) Technical assistance including consultants has been provided to strengthen coordination bodies.

3.30 It is particularly noticeable in the African region that sector institutions responsible for Coordination are very weak. Civil servants often lack the skills and the authority to act effectively. The feasibility of institutional development in such situations may be improved by focussing efforts on the utilities themselves rather than on the responsible regulatory agencies in the government. This approach may be equally applicable to other regions where the performance of utilities has deteriorated.

Involvement of Regulatory Bodies in Environmental Affairs

3.31 Regulatory bodies involvement in environmental aspects of power projects receive little reference in staff appraisal reports. The reports identify the measures being taken and the studies prepared to identify and minimize environmental risks, but the role of regulatory bodies is often not referenced. In project and loan agreements, the commitment is mostly obtained from the borrower or project entity and not the government regulator. This suggests that regulatory bodies may not be adequately aware of and involved in environmental aspects of some Bank-financed power projects. However, in the Latin America and Caribbean Region (LAC) the Bank has been active in environmental matters. In Brazil, the Government has agreed to prepare a master plan to address problems in enforcing environmental guidelines for hydro schemes. In Chile, the Bank has recommended that Government regulatory agencies should enhance their role and that their authority should be increased. In Colombia, ISA under the Power Sector Adjustment Loan (FY88) agreed to a Plan of Action covering Environmental and Resettlement aspects of Power Projects. The plan is considered a milestone in LAC and being implemented satisfactorily. Generally, involvement of regulatory bodies in environmental affairs should receive more attention in Bank lending operations.

Level of Government Involvement in Sector Policies on Personnel, Operations and Investment

3.32 The level of government involvement generally in sector policies reflects the desire of those governments for control of policy implementation by directing utility matters such as pricing, personnel operations, investment and borrowing. It is also closely related to the degree of autonomy afforded utility boards and managers by government regulators. Instances were noted in Colombia, Guinea-Bissau, Sudan and the Philippines among others where involvement by government has been detrimental or ineffective either by being too little or too much. This is because the sector entities could not take advantage of the greater (and in some cases lesser) level of Government involvement to increase their efficiency. In countries such as Korea, Chile

and Jordan, 5/ deregulation and increased autonomy has greatly enhanced utility performance. The experience of the countries reviewed indicates that lessening of government involvement by deregulation and with good utility management that is held accountable for performance, power sector efficiency can be improved. Competition from other generating sources can also be beneficial. If government involvement is replaced by monitoring performance through corporate plans, management performance contracts, contract plans and/or incentives, then reduced government involvement can also contribute to enhanced performance by utilities. Sometimes it is difficult to convince governments that this is so. To gauge the effectiveness of government monitoring of utility performance, the Bank should evaluate in a year or so the impact of the contract plan recently agreed in Morocco and the committee for monitoring performance in Colombia. A closer review of the reasons for the success of the Korean power sector could be illuminating in this respect, and this may be provided by USAID which is currently studying this aspect of the Korean power sector.

Incentives to Improve Sector Efficiency and Attract Private Sector Involvement

3.33 The study has identified considerable and growing interest and involvement of governments in improving sector efficiency and attracting private sector involvement through re-organization and changing regulatory arrangements. Private sector generation for use by owners has become substantial in many countries. 6/ This type of involvement is not, however, a recent phenomenon.

3.34 Evidence of growing interest by Governments in sector regulation and organization was noted in the following forms:

(a) Organizational Changes

There is considerable and growing interest in separating distribution functions from generation and transmission, e.g. in Bangladesh and Chile. Integration of generation facilities has occurred in Kenya where hydro facilities have been merged and in Zimbabwe where the hydro plant was taken over by the national utility.

(b) Legislation

Laws are being or already have been established or examined to permit construction of privately-owned plant and sales to the grid. (e.g. Bangladesh, Indonesia, Philippines, Thailand, Brazil, Costa Rica, Pakistan, Turkey and Kenya).

5/ Recently, the Government in Jordan has taken steps to increase its control over all public enterprises in an effort to stop excessive expenditure and hold down price increases.

6/ Kenya, Jordan, Brazil, Colombia and Indonesia.

(c) Regulations

In Bangladesh, Pakistan, Philippines and India governments are revising regulations and looking at incentives for encouraging private investment in new plant.

3.35 Involvement of the private sector will depend on government encouragement for utilities to make available reliable information on their costs. Many are improving information systems and accepting the need for greater accountability. Evidence of this was provided by Turkey where TEK has agreed to external audits and accounting changes to make available better information on its costs especially for those private investors interested in providing finance for power generation projects (para. 3.34).

3.36 Progress has been slow because of lack of experience of governments with the private sector and the existing cumbersomeness of bureaucracies. Private sector participants look for evidence of governments willingness to support private developments. They are also looking for incentives such as tax breaks, access to land and exemptions from import duties. Government guarantees are being sought that power produced will be purchased, prices will be set to provide adequate returns to investors, and fuel will be available at reasonable prices. Draft agreements will help to clarify such uncertainties such as access to foreign exchange for debt service and dividend payments. In Turkey, model agreements have been drafted and the Government has invited proposals from the private sector for large coal-fired thermal plants in which it would take a 30% equity. However, despite efforts by Turkey to attract BOOT projects, no new projects have yet commenced.

3.37 USAID has conducted workshops in India to review the results of consultant studies of the potential for non-utility power generation. Recommendations have been made by the consultants following these workshops. A full report is given in Annex 3. The consultants' recommendations included:- a review of legislation; development of non-utility generation policy; a study of avoided cost pricing in the Indian context; review of technical and financial aspects of interconnection between State Boards and private suppliers and the establishment of an independent regulatory body to handle issues arising between the parties. In response the Government is preparing a white paper on private sector regulation which may lead to improvement in incentives and opportunities for the private sector. The Government does appear to be taking a cautious approach. USAID report that the Government is interested in first evaluating its experience with a proposed 840 MW project at Karnataka which would be jointly owned by the State government and a US company.

3.38 An Institution Development Review of the power sector in Indonesia has been undertaken recently at the Bank's instigation. It will require a review of the existing institutions in the power sector, focus on issues of autonomy and possible future participation by the private sector. This review will be assisted by former senior executives of utilities in developed countries and could provide another perspective on the future course of regulation and organization which the Bank should follow in operations in the power sector elsewhere.

3.39 In Pakistan, under the Bank's recent Public Sector Energy Development Project, projects estimated to require \$1.8 billion have been approved or are under consideration or preparation. Financing of up to 30% of the project cost is being provided from a fund initially of \$520 million being managed by the National Development Finance Corporation. The arrangements being established include a security package for investors providing incentives and guarantees; co-financing agreements and a full appraisal of projects. These arrangements appear to be among the most progressive and encouraging currently being offered in developing countries. The Bank should monitor closely the experience in Pakistan and elsewhere in private financing of power projects and develop guidelines to assist staff with similar operations.

3.40 Chile's efforts to encourage private sector participation which were initiated without the Bank's involvement are also worth attention. The Government's divestiture of Endesa's assets (the largest power corporation in Chile), particularly distribution assets, could be a useful model. Chile is also involving private investors in projects by establishing each new project under a separate corporation e.g. Pehuenche Hydroelectric Project. The success of divestiture in Chile has been based on well-designed legislation, a financial rescue package and advance negotiations with unions. The type of government which existed at the time also facilitated the process and conditions which might not be able to be replicated elsewhere. Apart from the countries already mentioned, build, own, operate and transfer (BOOT) type projects are being actively considered in Indonesia, Philippines, Turkey, Bangladesh and a number of other countries. In Poland, the government is interested in a system of regulated markets, in separating out distribution functions and looking at models for developing its power facilities.

Composition, Appointment, Powers and Duties of Boards of Directors

3.41 Boards of directors of public corporations have been established in most of the countries studied. They are normally made up of external appointees numbering from 4 to 25 members. Directors are often appointed from governments, especially regulating ministries and planning bodies. Some members are appointed from senior managers of the utilities. Often there is not an adequate representation from consumers and the private sector. Functional responsibilities are sometimes assigned to a particular director. The decisions and powers of boards are often being set aside by governments in times of crisis because the governments want to take control and make the major policy decisions. This suggests that they lack confidence in the ability of boards to make decisions which are in the national interest. In some cases boards are highly politicized and are changed when governments change. If governments wish to make boards more effective and accountable they need to be encouraged to:

- (a) Limit political appointments.
- (b) Include competent private sector managers and representatives of consumer groups.
- (c) Make boards accountable for performance.

- (d) Give boards power to appoint and dismiss managers.
- (e) Establish and agree on corporate objectives and performance measures.
- (f) Review the method of appointment and dismissal of board members and prescribe the tenure of appointees for periods of time sufficient to ensure that fixed term appointments will achieve satisfactory results and don't coincide with elections.

3.42 Few examples of Bank efforts to strengthen boards of borrowers were identified. A recent exception which has already been mentioned was in Turkey (para. 3.35) under the Bank's Energy Sector Adjustment Loan. Here, agreement was reached to appoint more private sector representatives to the Board. In practice, the appointments which have been made did not lead in the Bank's view to the desired degree of strengthening because the calibre and experience of the new directors was not much better than the previous appointees.

Degree of Autonomy of Utilities

3.43 As a general rule, limited autonomy (based on the interpretation of autonomy given in the glossary) of utilities appears to be associated with poor performance and a low level of accountability. However, a high level of autonomy does not appear to be always associated with good performance. In Colombia, Philippines and some African countries, a high level of autonomy reflects inability of governments to exercise adequate control and hold electric utilities properly accountable. This would suggest that the Bank's efforts in these countries to seek performance measures and contract plans to improve accountability are appropriate.

3.44 Over a long period of time, the Bank has made considerable efforts to increase the autonomy of utilities. The results achieved suggest that this is very difficult especially when utilities are nationalized and centrally controlled. The energy crises, rising energy prices, surplus capacity, excessive debt and limited domestic budget funds have all put pressure on governments to limit autonomy of utilities. A new direction in power sector regulation may be more appropriate than maintaining pressure for increased autonomy. Options for possible changes are discussed in para. 7.10.

Definition and Enforcement of Utility Accountability

3.45 Previous sections of this report have mentioned the need to strengthen boards of directors and hold them accountable for performance. The problems of attempting to achieve a higher level of autonomy without increasing the level of accountability have also already been discussed. Increasing the level of accountability can be achieved through corporate planning or contract plans i.e. agreement on objectives and goals with government and setting performance measures reflecting, financial, operational and economic goals which can be monitored by government. There is a tendency to move in this direction among some of the countries reviewed. The governments, however, must be convinced that accountability can be substituted for control and provide regulators with the authority and means to enforce it. Without incentives to reward good achievement and penalties for failure,

accountability is likely to be less effective. Increased accountability can facilitate deregulation of tariffs and greater autonomy over investment planning and borrowing. The Bank should encourage increased accountability to facilitate deregulation and autonomy.

Social and Economic Criteria Used in Setting Policies on Power Sector Regulation

3.46 The material reviewed during the study does not provide clear evidence of social and economic criteria used by governments in setting their policies on power sector regulation. It has been suggested by the recent Bank review (para. 2.07) that governments sometimes use the electricity sector to create employment opportunities in the public sector and use electricity tariffs to provide power at a low cost for social reasons. The USAID study of non-utility generation in the Indian power sector (see Annex 3) commented that the government is opposed to economic pricing of power for reasons associated with its social and agricultural objectives. There is no doubt that cross-subsidies extensively distort the electricity pricing structure in many countries e.g. Turkey, Senegal, Sudan, Jamaica, Philippines, Kenya and India. The Bank however, has found it difficult to persuade governments to phase out cross-subsidies and has continued to encourage them to consider the cost of such subsidies when making decisions on price changes. Mostly policy makers in charge of country economic management are reluctant to look at the implications for the rest of the economy of decisions taken in or for the power sector. The Bank has acknowledged that reasonable consideration needs to be given to poorer people and those in rural areas on social grounds. However, should deregulation of prices become more widespread and the private sector's involvement in the financing, management and operation of utilities increase, the continuation of cross-subsidies would be likely to face increasing scrutiny. The only alternative would be to provide such assistance directly from government budgets.

4. DEVELOPING COUNTRY EXPERIENCE WITH VARIOUS TYPES OF REGULATORY ARRANGEMENTS

Correlation with Sector Performance and Characteristics of Successful Regulatory Arrangements

4.01 The Bank's FY88 Annual Sector Review of energy lending noted certain common features of successful entities:

- (a) Relative autonomy for management, procurement and staffing.
- (b) A sound professional and non-political organization structure.
- (c) An appropriate tariff policy that takes account of economic costs.
- (d) Operated on a framework of sound commercial principles

This study has not found any basis for discounting these conclusions but for these features to be established there must be effective regulation.

4.02 In Chapter 3 the main features of the regulatory framework in developing countries were described. From this review specific characteristics were found to be associated with successful regulation but there is a great deal of diversity. In some of the African countries, limited autonomy and ineffective government regulation and control have contributed to poor performance. The most successful regulatory formula appears to be where government reduces its control and permits a high degree of autonomy. These factors are found in Chile and Korea. However, in Korea the sector remains highly centralized and in Chile it has been decentralized. Some of the Asian countries have a similar degree of government involvement and autonomy as in Korea and Chile but the results are not comparable. This indicates that other factors contribute to the effectiveness of regulation. One of the most important is the size of the enterprise. The Asian power corporations studied have become very large and although good regulation has been provided, it does not work well. It is clear that there is no universal optimal mix of characteristics which will guarantee successful regulation. Each country has a unique mix of political, economic and social factors, and within this framework it develops regulatory arrangements which best suit the conditions within the country. It is, therefore, not appropriate for the Bank to prescribe a single set of regulatory arrangements as a model for all borrowers but some broad principles for guidance need to be established.

4.03 Generally, it can be concluded from this study that effective regulation is found with the following components:

- (a) Legislation - the relationship between the government and the industry needs to be embodied in a statute, charter, concession or administrative regulation.
- (b) Regulations - some regulation of public sector corporations is essential over prices, borrowings, budgets and investment program (paras. 2.05 and 2.06). Over-regulation can be as equally

ineffective as under regulation. Regulation should focus on results with minimum Government interference. It should be developed only to the extent necessary to control and discipline the entities in the sector. Where governments have been successful in improving accountability and they have confidence in the boards and management of utilities, there is scope for lessening the extent of regulation.

- (c) Regulatory Bodies - Governments need to separate their regulatory functions from those as stock-holder or owner of the electric utility. It is more appropriate to have separate agencies responsible for these functions to avoid conflicts of interest. It is essential that a regulatory body be established with clear rules and enough authority and independence to ensure Government and utility policies are compatible. This has been a problem in the Philippines since the Ministry of Energy was abolished and replaced by an Office of Energy Affairs under the President. A government ministry or a separate agency can be a regulatory body. In most cases a directorate or department of the Ministry responsible for energy is chosen. In Colombia, it was recently agreed with the Bank to set up an Energy Board. A separate agency is often more effective compared to shared responsibility between a number of ministries or agencies. Shared responsibility often leads to conflicts and Coordination problems such as are evident in India and Brazil (para. 3.12). The Chilean Government has dealt with this problem effectively by setting up a National Commission for Energy (CNE) in 1978 as a decentralized autonomous regulatory agency to prepare and coordinate sector policies, plans and regulations. CNE reports to the President through the Ministry of Mines.
- (d) Ownership - Public ownership can be just as effective as private ownership. Good performance was generally found to be related to management capacity and the degree of autonomy. Where public ownership has been ineffective, ownership and management by the private sector may be a realistic alternative. However, there may also be some penalties in the form of higher costs as private owners need to earn an adequate return on their investment. The development of private sector participation has not yet reached the point where it has been able to be demonstrated that it is a better option to public ownership even when the latter has not worked well (para. 7.10 (b)). In the early days of power development in many countries, private sector operations were able to provide reliable supply but not always in a fashion that was in the long-term public interest. Some made excessive profits and deferred maintenance so that when their franchises expired, the plant had little value.
- (e) Coordination - Coordination is most effective when established at the national level. Municipal and state bodies tend to be very parochial and allow regional or local interests to override the national interests. Efforts to establish national or state bodies to coordinate such groups are being tried. A Power and Lignite Board was established in Poland in 1987 to coordinate planning and operation of the power system through regional power enterprises. In Korea, an Electric Power Group Coordination Council was

established in 1984 to coordinate development strategies in the sector and make recommendations on power development programs.

- (f) Level of Government Involvement in Sector Policy - Some Government involvement in day-to-day operations especially appointments, salaries conditions and procurement undermines the role of management. It is more appropriate for Government to focus on strategy and policy through a corporate plan, contract plan or performance contract.
- (g) Incentives to Improve Sector Efficiency - Governments are seeking to create competition and encourage private sector involvement by changing legislation and re-organizing utilities to separate distribution activities from generation and transmission (para. 3.34). The perception is that diversification of ownership will be more efficient than nationalized systems. In the public sector, managers need to be awarded salaries and conditions which are comparable to their private sector counterparts. e.g. if they are expected to manage government enterprises on a fully commercial basis. However, if this is done they should also expect to receive the same treatment for performance as private sector managers. This implies that financial incentives are available to reward good performance and penalties including loss of job status where targets are not being met.
- (h) Composition of Boards of Directors - In countries where boards have been strengthened by including directors from the private sector rather than from government agencies, the boards have been able to be more effective. For this reason the Bank recently sought and reached agreement in Turkey to strengthen the board of the Turkish Electricity Authority (TEK). Government representatives often lack skills and management experience to provide direction to utility management. Boards with greater autonomy to direct management to take action to achieve objectives and goals agreed with Government are generally more successful. In Jordan, where the Minister of Energy and Mineral Resources is also Chairman of the board of the Jordan Electricity Authority, it is difficult for the Minister not to become involved in operational issues and to separate the commercial objectives being sought by the Authority from the government's political agenda. However, the Chairman of the Board is a critical appointment. It is essential that he have a strong background of achievement in the sector and also have a high standing in the business community. It is most desirable that the chairman be independent of utility management and the government.
- (i) Autonomy - Increasing the degree of autonomy for public corporations is only effective where boards and management are strong and held accountable to governments for overall performance. Where increased autonomy is due to government's lack of authority or the inadequacy of its managers then it has a negative effect on performance. In the Philippines where the heads of power utilities have been appointed by the President, the government ministry was relatively ineffective. This was possibly due not only to the calibre of the

Ministry staff but also because utilities in practice looked to the country's President for direction and were generally too strong in a political sense to be held accountable by a department of government with little authority.

- (j) Accountability - Increased accountability can be effective if Governments delegate authority and makes boards and managers accountable for achieving performance targets. In Korea, the Government has granted increased operational autonomy to the Korean Electricity Power Corporation (KEPCO) under the Public Enterprise Management Act. This gives greater power to KEPCO's president and allows the board to approve the corporation's annual budgets. The Act also established the Government Enterprise Management Council (para. 4.03 (e)) which lays down basic management policy, common budget guidelines for public enterprises and also evaluates their management performance. Just recently, a monitoring council was also established in Colombia to report half-yearly on action plans and performance of the sector companies.
- (k) Social and Economic Criteria - Despite the large number of marginal cost pricing studies undertaken in recent years, Governments have permitted social and other non-economic factors to continue to distort efficiency pricing. Constraints on the correct structure of pricing have undermined the financial viability of some utilities. A review of recent Bank appraisal reports reveals some good examples of the problems social issues have created. Rural customers are heavily subsidized in the Indian state of Uttar Pradesh. They represent a third of total sales. These consumers are organized into powerful political groups. Their influence recently prevented implementation of tariff increases aimed at full recovery of economic costs particularly for agricultural consumers. Although rates were only 60% of levels recommended by an independent tariff committee, the increases had to be rolled back because of serious unrest. Similar substantial cross-subsidies were noted in other countries for rural consumers namely Brazil, Philippines, Kenya and Jordan. Lifeline rates being offered to residential consumers have also been accessible to all customers not just the poor. These rates have also been criticized for being too high (in Jamaica) or too low (Kenya). i.e. concessional tariffs are applied to too large a block or in other cases the first block is too small.

4.04 The Bank, however, acknowledged in a recent loan to Indonesia that tariff changes needed to take account of social objectives as well as financial and economic in the context of the Government's broader national development policies. Government concern to provide lifeline tariffs and resource mobilization is also reported to have resulted in divergence from strict economic pricing principles.

5. PRIVATE SECTOR PARTICIPATION IN POWER SUPPLY

Forms of Private Sector Participation

5.01 Private sector participation has become a relatively new area of focus for most governments in developing countries. The basic aims of a policy for private sector participation are:

- (a) To use competition as a means of increasing efficiency and reducing monopoly power.
- (b) Reduce the need to use public funds for infrastructure and attract private capital where it represents an additional source of funds.
- (c) To use proceeds of assets sales to redeem government debt.

It requires a policy environment that encourages investment and competition by the private sector. Mostly private participation has not begun in the power sector, and therefore it is not reasonable to expect governments which have not already begun to take steps towards general involvement of the private sector in the economy will wish to start in the power sector.

5.02 There are many forms of private sector participation which can be adopted for the power sector. They include the following:

- (a) Sale of existing plant, land and buildings and other assets to the private sector.
- (b) Contracting out of services such as construction, rehabilitation, maintenance, computing, accounting, meter reading and collection, vehicles etc.
- (c) Contracts for operation and management of the utility such as joint venture, concessions and management performance.
- (d) Deregulation to remove restrictions on private plant owners selling to the grid.
- (e) Private investors funding plant for their own needs i.e. captive plant.
- (f) Joint ventures with government or utilities to build-own-operate and transfer (BOOT) preferably based on competitive bidding.
- (g) Cogeneration plants financed privately to sell surplus power to the grid.
- (h) Private equity investment in power corporations or new projects.

5.03 In developing countries USAID has been sponsoring studies by consultants especially in India, Pakistan, Philippines, Dominican Republic and

Costa Rica aimed at encouraging non-utility generation. It is helping to identify constraints on such projects and encourage the development of incentives and regulations to attract such private sector participation. USAID has established a "Private Power Data Base" to catalogue these projects. It would be useful for the Bank to obtain regular updates of this data base. A report on the Indian experience to date is given in Annex 3.

5.04 Progress of non-utility generation developments in India is slow. A government white paper is being prepared on private sector regulation. The consultants report that the potential exists to overcome the deficit in power plant capacity through non-utility generation but the government seem to be skeptical. They are concerned that the private sector may tap existing sources of funds now being used by the public sector. If the private sector developers can attract new additional financing then their involvement would be attractive to the government.

5.05 Annex 4 details the experience of developed countries (USA, UK, New Zealand and Australia) with various approaches to private sector involvement. Briefly these approaches have taken the following forms:

(a) USA

In 1978 legislation (the Public Utilities Regulatory Policies Act - PURPA) was enacted to overcome barriers to cost effective cogeneration by private investors. PURPA obliges utilities to purchase power from small producers at rates that are based on utilities avoided costs. Over the last 10 years some 24,000 MW of non-utility plant has been developed. PURPA has encouraged deregulation and competition in the US power industry. Pricing options have evolved to encourage competitive features such as spot pricing, bidding processes and rate shopping. In the past, the US has used regulation to control prices. The expectation is that if prices offered to private generators are right, government controls, subsidies, shortages and surpluses will be reduced.

(b) UK

In early 1988 the British government outlined proposals for privatization of the industry in England and Wales. It involves setting up two large generating companies to replace the CEGB, a separate national transmission "grid" company and twelve distribution companies based on the existing area distribution boards. The Electricity Council, which has been responsible for sector Coordination and regulation, is to be abolished. It is being replaced by a Director-General of Electricity Supply who will have the power to exercise a stronger regulatory role than the Electricity Council. The distribution companies will be obliged to supply in their areas and will negotiate purchases from the generators including private suppliers or from the grid company. Regulations are to be developed to promote competition but price controls will be developed for the distribution companies. New power station capacity will be contracted with generating companies, the distribution companies, and private suppliers.

This process is expected to take at least 3-4 years to implement. At this stage it appears certain that the Government will maintain a

considerable degree of regulation and powers to exert ultimate control. The task of selling-off the generating assets will represent the largest privatization project yet undertaken in the world. It will have major implications for UK industry especially fuel supply and power plant manufacture. A major strategic issue for the Government is whether it will deregulate the coal industry. Domestic coal prices are almost double those of imported coal.

(c) New Zealand

Since 1984 the New Zealand Government has embarked on a program of public sector reform which has led to corporatization as a first step to privatization of public business enterprises and departments. New state-owned enterprises have been established to take over government undertakings. Initially only the government holds shares. The electricity sector was among those corporatized. The new company, Electricorp, is structured as four profit based business divisions - production, marketing, construction and a transmission subsidiary, Transpower. A statement of corporate intent signed with the government sets out the commercial objectives and performance targets of each new corporation. It is possible that the next step will involve selling-off one or other of the four divisions of Electricorp to the private sector. There is also scope for restructuring the generating sector into several companies.

(d) Australia

The Federal Government's Economic Planning and Advisory Council (EPAC) reported in mid-1988 on economic infrastructure and highlighted the overcapacity in electricity generation due to non-economic pricing, (e.g. in one state domestic consumers are receiving a 30% subsidy from commercial users) and the lack of commercial objectives. The report noted the need for greater competitive pressure on generating authorities. The report proposed that public business enterprises which were capable of operating in a competitive environment should be considered for commercialization, corporatization or privatization. Those business enterprises which occupied monopoly positions and could not be subjected to monopoly control should be given increased autonomy and required to establish corporate plans, objectives and performance targets which should be independently monitored. The government in New South Wales is studying these options and seeking to sell off surplus assets. It is considering a number of privately funded proposals for generation projects. It is likely that increased commercialization of existing entities will be the first step and corporatization may follow in some instances. Some private generation projects are likely to be supported.

5.06 The Bank should monitor the continuing efforts of governments in the USA, UK, New Zealand and Australia to encourage privatization to see how they modify regulatory arrangements as each pursues its own approach to encouraging greater participation by the private sector.

BOOT Projects

5.07 The build, own, operate and transfer (BOOT) concept based on use of non-recourse financing is derived from the turnkey approach to power plant

construction. A private consortium or a joint venture can take the lead with government or utility participation. Successful BOOT projects depend on thorough preparation before the project commences. Agreements on fuel supply, power sales, construction and operations and maintenance need to be executed together. The sponsors, often the construction companies and equipment suppliers, usually form a company to build, own, and operate the plant. The company borrows for the project using limited recourse financing. Often the government will invite proposals from interested sponsors as has recently occurred in Turkey (para. 5.17). In other cases they may negotiate directly with the group which approached it first. A concession agreement defines the obligations of the concessionaire and is the key document in the arrangement because it creates the right to carry out the project.

5.08 The arrangements, procedures and agreements which are necessary for BOOT projects are complex. They can incorporate a wide variety of financial instruments. The sharing of commercial risks between the promoter and the utilities is important to the success of the arrangements.

5.09 The Bank should consider drafting model agreements and documentation to assist Bank staff in advising governments looking at BOOT projects. Study of the Turkey model would be useful for this purpose.

Experience in Developing Countries

5.10 In developing countries, there is an extraordinary growth of interest in encouraging private sector involvement in power generation. Legislation often already permits private generators or captive plant operators to sell power to the grid. USAID has taken a lead role in encouraging non-utility power generation through sponsoring studies of opportunities and maintenance of a database. The countries covered by the USAID database which have been reviewed in this study include India, Pakistan, Philippines, Costa Rica, Turkey, Thailand, Jamaica and Brazil.

5.11 In India, the Government is already reviewing the need for revised regulation and USAID has conducted a series of workshops (para. 3.37) that have involved discussion of issues of private sector participation. These are documented in Annex 3. The position of the Government is that policies covering the relationship between State Electricity Board and private generators should be developed by State governments. Private sector participation does have considerable potential for reducing existing power shortages. It is already clear that captive plant constructed by industry to meet its own needs is going to be an increasingly important source of electricity. However, until the Government makes its policies fully clear and establishes regulations and incentives, private generation will not be a significant contributor to the country's needs.

5.12 The highest level of interest in private sector developments is occurring in Asia. In Bangladesh, a Bank study was commenced in 1988 to identify opportunities for private sector investors in the energy sector and propose policy adjustments to facilitate such involvement. Current private sector participation in electric power is limited to downstream activities at the end of the distribution process like electric cooperatives. Recent

consideration by Government of private investor participation in a major new thermal generating plant could provide an opportunity for the private sector.

5.13 PLN's charter in Indonesia was amended in 1979 to provide for establishment of private utilities and cooperatives under license from the Ministry of Mines and Energy. However, no licenses were issued. Under the Bank's Power Sector Efficiency Project which is under preparation, the Government is being asked to prepare a suitable framework and model contractual agreements to utilize some of the (in-house) private generating capacity (estimated at 4,500 MW in all of Indonesia) to promote economic co-generation by industries. The institutional development review (para. 3.38) under the same project is looking at participation of the private sector as a means of reducing financial dependence on the Government. A private sector proposal to build, operate and transfer large gas-fired plant for PLN in Java is currently under discussion.

5.14 In the Philippines, the Government recently issued an amendment to Presidential Decree No. 40 allowing the private sector to construct and operate electric generating plants and sell the output to the grid. The National Power Corporation has established procedures for implementing private sector generation projects. It has already signed BOOT contracts for gas turbines and coal-fired plants.

5.15 The Government in Thailand is seeking to increase participation of private investors in the energy sector because of concern over the size of the public debt. The National Energy Administration is assisting development of a number of mini-hydro projects. Industrial cogeneration and small scale systems burning agricultural wastes are expected to provide a small increment to generating capacity. Longer term, the Government wishes to involve private investors in financing utility operations. EGAT, the principal bulk power supplier, is looking at options such as BOOT projects, but policies and procedures for encouraging these developments need to be prepared.

5.16 Under the long-term energy strategy in Pakistan, the Government proposed to take measures to establish an institutional framework to provide security and incentives to increase private sector involvement in energy development. In the power sector specific investments have been earmarked for private sector funding to provide up to 6,000 MW of generating capacity by 1998. Despite measures aimed at stimulating private sector interest, the response was limited. Following recommendations by consultants, a Private Sector Energy Development Fund was set up to be administered by the National Development Finance Corporation. Under the Bank's Private Sector Energy Development Project (FY88), an institutional framework for sustained private sector investment has been established. The project seeks to fund up to 30% of the cost of private BOOT projects using limited recourse financing. As of mid-1988 US\$415 million was being earmarked for projects estimated to cost US\$1.8 billion.

5.17 The Bank's Energy Sector Adjustment Loan (FY87) in Turkey (para. 7.07 (c)) led to recommendations for revising the existing regulations relating to private generation. These were aimed at ensuring private sector participation in BOOT projects based on regulatory reform. The Government has not been amenable to most of the proposals which would indicate that it is not

really committed. However, the State Planning Organization has unsuccessfully sought to negotiate construction of large power plants with private investors on a BOOT basis. Private hydro plants and autogeneration projects are also under consideration. The Turkish Electricity Authority sees itself remaining in control of generation and transmission and taking an equity interest in small private projects.

5.18 In the Latin American and Caribbean Region, Chile has attracted private investment in the power sector by divesting government ownership of utility companies starting with the regional distribution companies, then small generating companies and subsequently the larger companies. In most cases this has been accomplished by transfer of shareholdings to private and institutional investors such as pension funds, insurance companies, construction organizations and employees. New projects are being implemented by specially establishing them from the outset as privately owned companies. The key to these changes has been the deregulation of energy prices for major consumers which are largely determined through market mechanisms. The power companies are regulated by the country's Corporation Law and the commercial and labor codes governing Chile's corporations.

5.19 Elsewhere in the Region, Governments in Brazil, Jamaica and Costa Rica of the countries reviewed are looking at regulatory changes to encourage private sector participation.

5.20 All this activity signals an end to the progressive acquisition of private operators and utilities by Governments intent on nationalizing of the electric power industry. The trend is now clearly moving in the opposite direction as governments are finding difficulty without private sector involvement, providing adequate funds to meet the demand for electricity. There is as yet only limited evidence that private sector involvement will provide the volume of funding needed for power developments. Privatization is a complex process and there are many different routes to privatization. Better regulation and greater focus on a commercial approach may only be a first step. In other circumstances management contracting or long-term leasing or outright sale or divestiture can accomplish the same ends i.e. increasing efficiency and attracting additional financing.

6. ISSUES FOR REFORM OF POWER SECTOR REGULATION

6.01 The study has identified broad problem areas in organization and regulation of the power sector in developing countries which are common to all regions of the Bank. In many countries governments are not satisfied with the present arrangements and are investigating alternatives and imitating the changes in developed countries. By far the most important development for the sector as a whole is the focus on private sector participation and the regulatory changes needed to encourage such participation. Overall, 70% of the countries reviewed, including 5 out of the 6 countries in Asia, are contemplating or have already begun projects with private sector involvement in some form. The effects of these developments are going to be very significant for the way electric utilities are operated and regulated in future. From the Banks perspective, it should continue to seek improvement in public utility performance as there is no fundamental reason why public management can't be as effective as private management.

6.02 Regulation is not working effectively in most developing country power sectors. The reasons and characteristics of good regulation are not readily apparent, and further examination of the institutions is needed to provide the answers. Generally, there are too many government agencies involved in regulation and they are poorly coordinated. More regulation is not seen to be the answer. The real issue is what degree of regulation is appropriate?

6.03 The issue of who should regulate and how is occupying much attention. In New Zealand, the Ministry of Finance has assumed this role under the corporatization process there. In UK, the Electricity Council will be abolished and its place taken by an office of the Director-General of Electricity Supply. Total deregulation would likely lead to chaos. The trend which seems to be emerging in some developed countries is towards interministerial boards, or public enterprise management groups. In some developing countries a separate agency is viewed as likely to be more effective compared to shared responsibility between a number of ministries and agencies. Central planning such as is found in socialist countries is not appropriate in developing countries nor is the rigid regulatory processes which have been followed in the U.S.A. Both these mechanisms are being gradually dismantled. Processes that provide for competition, less regulation and control but increase accountability of boards and managers are now being considered such as commercialization, corporatization and privatization.

6.04 Another issue facing governments is to determine what is an acceptable rate of policy reform. Looking at developed countries, UK has decided to move in one step to privatization. In New Zealand, the government has established government corporations as a first step to privatization. Australia is more cautious and is likely to require public business enterprises to operate on commercial lines and await the results of more radical moves overseas. Deregulation of prices and authority for approving budgets and programmes should not be permitted unless the governments are confident that their policies will be maintained and that managers are capable of meeting targets agreed with governments. Further study of this issue is needed to find out what works and what doesn't work.

6.05 The design of regulatory reform by governments also needs to take account of the rate of change but also to ensure that reform is implemented and effective. Some utilities have enjoyed monopoly power and may not be willing to relinquish it readily. Government agencies will still be needed to ensure coordination with other sectors. Monitoring bodies will be required to evaluate performance and conformance with government policies.

6.06 The organization of the power industry through national utilities responsible for generation, transmission and distribution is now under scrutiny by governments dissatisfied with the present arrangements. They are starting to re-organize possibly without clear objectives and goals. In Bangladesh, Chile, Indonesia, Philippines, Turkey, Pakistan and Poland, the existing structure is being reviewed.

6.07 Governments have found that, because large utilities are not efficient and are difficult to regulate, they are looking at the changes being adopted in developed countries such as ways of creating competition among power generators. The issue is how best to create that competition. Some of the options being considered are:

- (a) generation - setting up separate entities for new projects such as, in Chile, grouping power plants into separate entities to provide competition and separating generation from transmission and distribution. Another proposal under consideration in Poland is to make power stations separately accountable as profit centers. This step could be extended to include selling power to the interconnected grid on a competitive basis as is now being done in the U.S.A.
- (b) system control and transmission facilities can be operated as a separate business unit to transfer electricity between generators and distributors
- (c) distribution is being separated from generation and transmission either by establishing a single separate entity or a number of such entities covering different regions.

6.08 Governments which have failed to secure increased efficiency in the power sector are now looking to corporate planning processes and improved information systems to measure performance. The issue is - will these mechanisms work? What pre-conditions are necessary for their success? Where the private sector is interested to participate, investors need reliable information on public supply costs. Better reporting is needed and more reliable and timely audits will help to increase investor confidence in opportunities for an adequate return on such investments, which will facilitate private sector participation. Governments will need to look at mechanisms for guaranteeing adequate returns for investors, and provision of incentives. Private investors need protection from risks such as nationalization, expropriation, access to foreign exchange to meet debt service, to repatriate profits and pay dividends. In the past actions by governments and excessive profits by privately-owned utilities have led to nationalization of utilities. It is important to emphasize that one of the

main objectives of this drive towards efficiency is to achieve more resilient power sector entities which will be better able to cope with external shocks.

6.09 Public corporations will need to be willing to deal fairly with private generators by providing information on their own costs and agreeing to purchase from private generators when the latter's costs are lower. Both parties will have legitimate concerns about pricing, maintenance, safety, reliability and environmental standards. Formal agreements covering these arrangements will need to be established.

6.10 The difficulties being experienced by the utilities and government in obtaining adequate funds to finance expansion have led to their considering private sector participation. As already mentioned, many countries are looking to the private sector to provide additional funding, i.e. over and above the sources of finance already available. This raises many problems with implementation because appropriate conditions for private sector participation don't exist in many developing countries. The issue is to establish under what circumstances private sector involvement can be justified. Private sector involvement as Chile has shown can be fostered if a climate of deregulation is established. Governments need advice on how far deregulation should extend and just what the respective role privatization should have in future sector development.

6.11 Despite the range and complexity of problems associated with implementation of projects with funding from the private sector they are being dealt with adequately already in Pakistan with considerable input from the Bank and in Chile largely without the Bank's input and in other countries to a lesser extent. Consideration should be given to preparing an issues paper for discussion within the Bank for the purpose of preparing a Bank guideline on recommended treatment of issues arising from private sector involvement in the power sector.

7. WORLD BANK'S IMPACT ON REGULATORY REFORM

Bank's Role in Private Sector Development

7.01 The Bank's 1988 Annual Report notes that it has expanded its efforts to help developing countries obtain advantages from private initiatives. This has gone beyond traditional avenues of providing finance for private enterprise and promotion policies and regulations that support a competitive and efficient economic environment. They have included:

- * Policies promoting private investment through improved access to credit, removal of restrictions on private investments, security against expropriation and tax changes.
- * The establishment of the Multi-lateral Investment Guarantee Agency (MIGA) insuring investors against such risks as losses due to nationalization and restrictions on currency conversion.
- * IFC assistance especially advice on changes to policies and regulations to facilitate private sector investment.
- * Support for programs that eliminate public monopolies and encourage privatizing public enterprises.

7.02 The Bank has established a Public Sector Management and Private Sector Development Division in the Country Economics Department as a focal point for developing approaches and policies for private sector development.

Bank Review of Work on Private Sector Development

7.03 In December 1987 the Bank's Public Sector Management and Private Sector Development Division prepared a report summarizing Bank group activities in private sector development since FY80. The report focused on recent activities designed to change the policy and institutional framework including changing the regulatory environment to remove obstacles to private sector development and restructuring the public sector. In the industry and infrastructure sectors including energy, the report notes that the Bank has been placing greater emphasis on joint ventures, management contracts and privatization.

7.04 The report points to indifferent treatment of regulatory reform. A total of 109 projects dealing in all sectors with private sector development were reviewed and it was found that only ten provided for revision of legislation relating to foreign investment and only four worked to strengthen government's capacity to curb private monopolies and promote competition. The projects focus heavily on public sector restructuring and private investment promotion. This, the report suggests, may be due to Government's disinterest in Bank involvement in regulatory reform and lack of country economic and sector work, for example on effects of regulation or taxation.

7.05 Issues which the report raises include whether the Bank should set priorities for research and policy work. Also the gaps in regulatory,

institutional and financial reforms are mentioned in the report's summary and conclusions (page IV) and the possible lack of skills and resources. Lastly the report suggests that there should be better Coordination between the Bank and IFC on these matters.

Regulatory Covenants in Recent Bank Power Loans

7.06 A selection of covenants relating to regulation of the power sector extracted from Bank appraisal reports is given in Annex 5. This shows that the Bank has paid very little attention to strengthening the framework and mechanisms of regulatory bodies in its lending in the power sector until quite recently. In the past considerable efforts and changes may have been achieved during project preparation and prior to negotiations, but these were not recorded in the agreements reached. However, it seems more likely that the Bank has concentrated its efforts on strengthening the borrower's organization, management systems and staffing to ensure successful project implementation.

7.07 In the last three years or so the situation has changed significantly. In most of the countries studied, specific covenants have been included for the power sector in almost all the countries where the Bank has maintained a high lending profile. However, it is too early to determine the effectiveness and results of these covenants because the actions sought have yet to be completed. A brief listing of some of them will serve to illustrate the current direction and form of these covenants:

- (a) Morocco - Public Enterprises Rationalization Loan included commitments to furnish to the Bank proposed policies and procedures for oversight of the national utilities financial operations by government. A 3-year corporate plan has been submitted and subsequently agreed for implementation after exchange of views with the Bank.
- (b) Pakistan - Power Sector Energy Development Project. Government agreed to establish an institutional framework to facilitate private sector participation in energy development. This is being done.
- (c) Turkey - Energy Sector Adjustment Loan. Agreements were reached with Government to establish a regulatory body within the Ministry of Energy and Natural Resources, prepare regulations for private investors and operators and restructure TEK's board. These undertakings have not, apart from some restructuring of TEK's board, been carried out.
- (d) Indonesia - Power Sector Efficiency Project. Government agreed to establish an energy pricing unit and a plan for introducing regulatory measures to use captive plant and encourage co-generation. These matters are in progress.
- (e) Brazil - Power Sector Loan included an undertaking to review the institutional structure of the sector including legislation. This is still in progress.

- (f) **Colombia - Power Sector Adjustment Loan.** An energy board has been established to improve sector Coordination and a committee to monitor sector performance set-up.
- (g) **Chile - Pehuenche Hydroelectric Project.** Institutional studies are agreed to be prepared and regulations relating to concessions are to be updated. These are in progress.

7.08 The Bank's record in establishing these covenants has been quite impressive. It would be useful for the Bank to monitor the progress of the previously listed covenants to assess their effectiveness and record the experience from them for information of Bank staff.

7.09 Until about three years ago, the Bank appeared not to have attempted to interfere with existing regulatory mechanisms in the power sector. In fact, typical covenants in Bank loans a decade or more ago contained provisions to the effect that any changes to existing legislation that would adversely affect the borrower would constitute an act of default. Much progress has been achieved since those agreements were made as the Bank has developed covenants supporting focus on changing regulatory arrangements in recent loans. This is expected to provide a more lasting benefit than the old style of covenant which triggered an act of default if the existing legislation was changed.

Options for Bank Policy on Regulation

7.10 Options for Bank policies on regulation which should be considered are:

- (a) Approach to Regulation in Power Lending Operations

Bank staff should be encouraged to maintain an active role towards regulatory issues and arrangements to find out what works and what does not work. The review has shown that regulation of the sector can be approached from different perspectives. If the existing structure and framework has been ineffective, then the Bank should encourage consideration of alternatives for sector organization taking account of the relative strengths of the parties with respect to regulation, to find solutions acceptable to borrowers and their governments. It is most unlikely that any one regulatory model can be shown to be suitable for replication on a broad basis. The Bank should not be dogmatic by attempting to impose a successful formula from another country unless it has the full support and agreement of all power sector institutions and the Government. It needs however, to have some broad principles for guidance. Each country should be encouraged to optimize its regulatory framework on the basis of the existing political, legal, economic and social framework.

- (b) Private Sector Participation

Private sector participation should not be encouraged specifically in the power sector if governments have not already adopted policies which are supportive of the private sector in other areas of the

economy. Clearly established regulations and procedures are a prerequisite to attracting private sector investment. There also needs to be a political commitment, desire for competition, existing good management and a willingness to reduce government control and increase operational autonomy for power sector bodies. USAID believes a promoter or sponsor of a privately funded project is also needed. There must also be a need for additional financing to meet new investment requirements and a desire for increased operational efficiency. The financing that is likely to be used by private sector investors should be additional to the sources that are already available to public sector borrowers to avoid unnecessary competition for scarce funds. The main objective should be to improve sector performance in line with country development (not privatization, per se). Some privatization efforts have even had a detrimental impact such as in the case of Colombia where a proposal was made for market reorganization which took away the utility's best markets.

(c) Commercialization and Corporatization Options

Before urging privatization on governments the Bank should thoroughly explore the extent to which commercialization and corporatization options have been fully developed. Commercial and corporatization involves meeting the following criteria:

- (i) Commercial accounting standards should be followed.
- (ii) Commercial objectives should be sought.
- (iii) Prices, wages and pay dividends should be based on commercial principles.
- (iv) The same capital market discipline should be applied as for the private sector.
- (v) Returns achieved should be comparable to the private sector.
- (vi) Corporations should be liable for the same taxes and charges as the private sector.

If these criteria are met, commercialization or corporatization are viable options and effective alternatives to privatization for raising investment funds and improving efficiency and accountability.

(d) Loan Covenants

The Bank needs to strengthen conditionality regarding sector lending but it should not seek regulatory covenants which it is not prepared to follow up during project implementation. Several instances where the Bank has not followed up covenants were noted during this study. Rather than obtain commitments from Governments which they are unlikely to honor, it would be more effective to seek and obtain

regulatory improvements prior to project appraisal. This would be consistent with the 1987 staff directive on power that complements OMS 3.72 (para. 2.05).

(e) Corporate Plans/Contract Plans/Performance Measures and Improvement Plans

Establishment of corporate plans and performance measures (or contract plans or management performance plans) agreed with government are mechanisms which appear to be growing in popularity as a means of improving performance and accountability should be further encouraged by the Bank. Agencies for monitoring such arrangements have been established or are being set up in a number of the countries reviewed. However, to facilitate performance measurement, it is necessary to have in place an effective management information system (MIS) including adequate budgeting, accounting and reporting systems.

(f) Support Trends Away from Nationalization

Governments willing to encourage competition in the electric supply industry should be encouraged to re-shape the regulatory framework by:

- (i) Adopting a favorable environment to the development of quasi-nationalized or diversified ownership of systems.
- (ii) Regulating to permit and encourage private sector generation.
- (iii) Deregulation of pricing and minimizing of cross subsidies.
- (iv) Establishing regulatory bodies to facilitate and coordinate changes and monitor performance.

(g) Private Management

Where the conditions are not favourable to competition and the government has over a long period been unable to develop efficient nationalized power corporations despite the Bank's assistance, then it may be appropriate to consider private management arrangements i.e.. concessions, licenses, affrimage or performance or fixed fee management contracts. In all cases performance targets should be agreed with Government and should be monitorable by it. Such arrangements would be appropriate particularly in African countries.

(h) Training and Seminars

Programs should be developed to encourage, explain and assist Bank staff to a fuller understanding of new approaches and concepts discussed in this report and to promote changes and policies based on ongoing research.

Recommendations for Further Development Work

7.11 The principal sources of ongoing research work on regulation with the Bank's involvement are:

- (a) ESMAP/EMENA managed research into institutional and regulatory options in the power sector. This work is being carried out at the Center for Energy Studies at the Kennedy School, Harvard University under the direction of Dr. Charles Cicchetti (who recently assisted the Bank with the Turkey Energy Sector Adjustment Loan). An Industry and Energy Department working paper is scheduled to be completed soon.
- (b) USAID has sponsored consultant studies in several countries on non-utility power generation including India, Pakistan, Indonesia, Jamaica, Costa Rica, Turkey and Brazil. USAID has helped to define strategies and recommendations for legislation for non-utility participation in power generation. There is close consultation with the Bank on this work.

7.12 Further research including information gathering to develop and test options for Bank lending policy would be appropriate and useful for Bank staff. The first priority should be directed at the issues for regulatory reform identified in Chapter 6 of this report. The Bank should on the basis of its analysis of successful regulation identify the characteristics of that success and seek to apply them elsewhere in future operations. Bank seminars could be conducted at which Bank staff including those who have participated in this study could comment on the issues. Subsequently, a Bank guideline should be prepared setting out broad principles of the Bank's policy towards power sector regulation.

7.13 In order to continue the research commenced under the current study and to maintain contact with associated institutions, it would be necessary to continue close coordination and cooperation with the following:

- (i) USAID (non-utility power generation).
- (ii) IFC (to avoid duplication in research efforts and operations).
- (iii) Public Sector Management and Private Sector Development Division.
- (iv) Changes in regulatory arrangements in the U.S.A., U.K., New Zealand and Australia and the extent to which they are successful or otherwise.
- (v) Continue to obtain further information on existing regulatory arrangements in developing countries to fill in gaps found during the current study (para. 3.06).
- (vi) Monitor recent Bank operations relevant to private sector participation and improved regulation, e.g. particularly in Indonesia under the planned Private Sector Institutional Development Review and in Pakistan under the Power Sector Energy

Development Project and those listed in para. 7.07 of this report.

It would also be valuable to establish an exchange of views and experiences with bilateral and multilateral agencies such as EIB, ADB, AfDB, IDB and OLADE.

7.14 The Bank could assist staff working with borrowers on projects seeking to increase financing by the private sector in power generation projects by arranging for consultants to draft:

(i) Model agreements and regulations for BOOT type projects. These could include:

- * Purchase agreements
- * Co-generation agreements
- * Implementation agreements
- * Construction agreements
- * Operation and maintenance agreements
- * Wheeling agreements

(ii) formula for establishing and monitoring buy back and stand by rates based on avoided costs.

7.15 Works of a lesser priority could include:

- (i) Analyze the causes/reasons for the concession system's demise in Latin America and Africa and whether or not it is possible to harmonize the concessionaire's managerial, operational and profit objectives with those of contracting governments; and
- (ii) Evaluate and compare the various mechanisms for private management of utilities i.e. affrimage, concession, license, fixed fee and management performance contracts (including twinning arrangements). Prepare model agreements.

7.16 Lastly, in-depth case studies should be considered examining the effects of existing laws, ordinances and regulations on efficiency and performance in selected countries. From this work it should be possible to develop better examples and the reasons for successful regulation which might be applied elsewhere. Target countries for such studies might include Chile and Korea because of their good recent experience, Chile with private sector involvement and Korea without it.

List of Documents Reviewed

FY88 Annual Energy Sector Review (IED), October 19, 1988 (draft).

Developing Electric Power - Thirty Years of World Bank Experience
Hugh Collier (1984).

Recent Developments in the U.S. Power Sector and their Relevance for Developing Countries - Industry and Energy Department Working Paper, Energy Series Paper No. 12, February 1989.

Investing in Development - Lessons of World Bank Experience - Warren C. Baum and Stokes M. Tolbert, July 19, 1985.

OMS 3.72 Sector Operations Directive Electric Power - Energy Department, April 1987.

A Review of World Bank Lending for Electric Power - Industry and Energy Department Working Paper No. 2, March 1988.

Improving Power System Efficiency in the Developing Countries through Performance Contracting - Industry and Energy Department Working Paper No. 4., May 1988.

Legal and Administrative Framework of Electricity Undertakings - Department of Economic and Social Affairs - UN 1973.

The "Concession" System in Public Utilities - SAR First Power Project - Ivory Coast - June 18, 1980.

Private Business in Developing Countries - Discussion Paper No. 1.
Guy P. Pfefferman (IFC), Sept. 1988.

Private Power Data Base - RCG/Hagler, Bailly Inc. - USAID - Sept. 1988.

Is Privatization the Answer - Richard Hemming and Ali M. Mansoor - Finance and Development, Sept. 1988.

The Experience with Privatization - Mary Shirley - Finance and Development, Sept. 1988.

Economic Criteria for Privatization - R. Vernon (draft), Feb. 15, 1987.

Institutional Innovation and Regulatory Issues in the Power Sector - Comments on the ESMAP Activity Brief - Yves Albouy, June 22, 1988.

Institutional Innovation and Regulatory Issues in the Electric Power Sector
Alastair McKechnie and Ian Johnson, June 8, 1988.

The Aid (USAID) Experience with Independent Power Generation
James B. Sullivan, Sept. 1988.

Survey of the World Bank Group on Private Sector Development
M. Shirley/S. Kiberi, December 8, 1987.

LIST OF COUNTRIES REVIEWED UNDER THE STUDY

AFRICA

Guinea-Bissau
Ivory Coast
Kenya
Senegal
Sudan
Zimbabwe

ASIA

Bangladesh
Korea
India
Indonesia
Philippines
Thailand

EUROPE, MIDDLE EAST & NORTH AFRICA

Jordan
Morocco
Pakistan
Poland
Turkey

LATIN AMERICA & CARIBBEAN

Brazil
Chile
Colombia
Costa Rica
Jamaica

Summary of Main Features of Regulatory Arrangements in Africa

	<u>GUINEA-BISSAU</u>	<u>IVORY COAST</u>	<u>KENYA</u>
1. Legislative framework			
(a) Main entities	Electricidade e Aguas de Guiné -Bissau (EAGB) (production and distribution of water and electricity). Directorates of the MRNI (provide water and electricity outside Bissau).	Energy Electrique de la Côte d'Ivoire (EECI) (a limited liability company responsible for generation, transmission and distribution)	1. Kenya Power and Lighting Company (KPLC) (coordinates the power grid, purchases in bulk and is the sole distributor) 2. Kenya Power Company (KPC) integrated with KPLC 3. Four Hydro development authorities
(b) Legislation	Electricity Law of 1985		State Corporations Bill 1986 Electric Power Act of 1965
2. Mechanisms used to administer regulatory policies	1. General Directorate of Energy (DGE) 2. General Directorate of Hydro Resources (DRGH) of the Ministry of Resources and National Industry (MRNI).	1. Directorate of Energy and Infrastructure in the Ministry of Industry and Planning (technical responsibilities and planning) 2. EECI operates under a concession arrangement 3. An action program and performance contract between EECI and Government is being prepared	1. Ministry of Energy (MOE)
3. Ownership of power facilities	Government owned	EECI - 94% State owned	1. KPLC - 40% privately owned 2. KPC - wholly owned by Govt 3. Four hydro development authorities are Govt owned
4. Supervision, responsibilities, composition and resources of regulatory bodies	N.A.	Ministry of Planning and Industry (technical) Ministry of Economics and Finance (financial)	Ministry of Energy (MOE) (oversees energy policy) Ministries of Finance and Planning Interministerial Committee (for implementation)
5. Coordination of sector institutions	Historically very poor	Little coordination by Government	KPLC coordinates the grid, manages generation plants of development authorities, constructs and operates rural developments

	<u>SENEGAL</u>	<u>SUDAN</u>	<u>ZIMBABWE</u>
1. Legislative framework			
(a) Main entities	SENELEC (generation, transmission and distribution)	National Energy Company Corporation (NEC)	1. Zimbabwe Electricity Supply Authority (ZESA) (generation, transmission and distribution) 2. Zimbabwe River Authority (ZRA) (operates Kariba complex/river developments)
(b) Legislation	1983 Law establishing SENELEC and accompanying decrees, statutes and 1984 Cahier des Clauses et Conditions Generales	Virtually no legislation or regulation	1. Electricity Act--1985 3. Electricity Ordinance--1963 3. Parastatals Commission Bill--1987
2. Mechanisms used to administer regulatory policies	Directorate of Energy (DE) of the Ministry of Industrial Development and Craftmanship (MDIA) National Energy Committee - reviews policy options National Energy Commission - is responsible for policy decisions	1. Ministry of Energy and Mining (MEM) 2. National Energy Administration (NEA) 3. National Energy Planning Committee	Ministry of Energy, Water Resources and Development (MEWRD) through its Department of Energy (policy formulation). ZESA reports to the Minister. ZRA is responsible to the Higher Authority for Power (HAP).
3. Ownership of power facilities	SENELEC is a 100% Government owned public corporation	NEC is an autonomous Government owned corporation	ZESA is a national power authority. ZRA - Kariba complex is jointly owned with Zambia.
4. Supervision, responsibilities, composition and resources of regulatory bodies	DE regulates SENELEC	MEM - policy formulation NEA - planning arm of MEM	Department of Energy in MEWRD
5. Coordination of sector institutions	DE lacks suitable personnel.	MEM coordinates sector institutions	Coordination by MEWRD has been relatively weak. Govt was to prepare a plan with assistance of ESMAP to improve coordination

	<u>GUINEA-BISSAU</u>	<u>IVORY COAST</u>	<u>KENYA</u>
6. Involvement of regulatory bodies in environmental affairs	N.A.	Ministry of Forestry	N.A.
7. Level of Government involvement in sector policies on personnel and investments	Responsibilities of DGE and EAGB not clear. Salaries of EAGB tied to Government	Limited and weak	Government not involved in day-to-day management. Tariffs and investment plans are approved by Government
8. Incentives to improve sector efficiency and attract private sector investment	The Government has entered into a 4-year partnership agreement with EDF to help manage EAGB. It includes a contract plan and a training program for EAGB.	See No. 11, Private Involvement	Legislation provides for private sector involvement in geothermal development. Regulations are being prepared.
9. Composition, appointment, powers and duties of boards of directors	N.A.	12 member board including 2 private members appointed by Government	KPLC - 11 member board
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	MRNI functions not adequately separated from EAGB	Limited autonomy	KPLC has autonomy to implement agreed policies and programs
11. Private sector involvement	No private sector involvement	Under the new electricity law of 1985, EECI does not have a monopoly on generation to allow for co-generation or self generation by the private sector	KPLC - 40% private equity. Substantial private sector generation for own use. No direct private sector involvement in geothermal development as yet.

	<u>SENEGAL</u>	<u>SUDAN</u>	<u>ZIMBABWE</u>
6. Involvement of regulatory bodies in environmental affairs	N.A.	N.A.	N.A.
7. Level of Government involvement in sector policies on personnel and investments	Govt not involved in day-to-day management. Ex post control is exercised by Govt financial controller and auditors and a "Conseil de Surveillance"	MEM lacks the capability for its role. Still approves appointments at NEC and regulates policymaking role of NEC's board	Considerable Government involvement. Govt approves budgets, tariffs, wages and staff dismissals
8. Incentives to improve sector efficiency and attract private sector investment	SENELEC is managed under a "Contrat Plan" or performance contract - a detailed plan for improvement of Senelec's management and performance. Technical assistance is being provided by HYDRO-QUEBEC under "twinning" agreement. No incentives for private sector involvement	MEM is developing MIS system with consultants' assistance. USAID has financed consultants to strengthen NEA and MEM and train its staff	ZESA is permitted under the Act to consent to private generation and supply with the Minister's approval
9. Composition, appointment, powers and duties of boards of directors	SENELEC has 16 member board meeting 3 times a year	NEC has a 10 member board	Zimbabwe Electricity Supply Board controls and manages ZESA. It has a board of 6-10 members appointed by the Minister
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	Senelec has considerable autonomy under "contrat plan" with Government, especially for salaries and procurement matters	NEC has become more autonomous, especially on financial matters	ZESA does not have full autonomy over tariffs, budgets, staffing or wages
11. Private sector involvement	SENELEC does not have a monopoly on electricity generation; auto producers have about 25 MW of capacity and SENELEC has a co-generation agreement with the groundnut company.	Some private generation by industrial undertakings	Mines and sugar plantations have captive plant

Summary of Main Features of Regulatory Arrangements in Asia

	<u>BANGLADESH</u>	<u>KOREA</u>	<u>INDIA</u>
1. Legislative framework			
(a) Main entities	Bangladesh Power Development Board (BPDB) responsible for generation, transmission and distribution except in rural areas where the Rural Electrification Board (REB) has jurisdiction	Korea Electric Power Corporation (KEPCO) (generation, transmission and distribution)	1. State Electricity Boards (SEBs) 2. National Thermal Power Corporation (NTPC) and National Hydro Power Corporation (NHPC) 3. Municipal and Private Utilities 4. Rural Electrification Corporation (REC) 5. Power Finance Corporation 6. State-owned generation companies
(b) Legislation	Electricity Act of 1910 Electricity Rules of 1937	Public Enterprise Management Act	1948 Electricity Supply Act
2. Mechanisms used to administer regulatory policies	1. Planning Commission (Energy Master Plan) 2. Ministry of Energy and Mineral Resources, Office of Electricity Inspector	1. Ministry of Energy and Resources (MER) 2. Government Enterprise Management Council (basic management policy, guidelines for budgets and performance)	1. Central Electricity Authority (CEA) of the Department of Power within the Ministry of Energy 2. Planning Commission approves overall investment plans 3. Regional Electricity Boards (REBs)
3. Ownership of power facilities	1. BPDB is a statutory autonomous Government owned body 2. REB facilities are owned by rural co-operatives	KEPCO - 100% Govt owned	1. SEB's are owned by State Govts 2. NTPC and NHPC are owned by the Central Govt
4. Supervision, responsibilities, composition and resources of regulatory bodies	1. Ministry of Energy and Mineral Resources (MEMR)	1. Ministry of Energy and Resources (overall supervision) 2. Economic Planning Board (investment and rates) 3. Ministry of Finance (investment plans)	1. CEA (National power policy regulation and coordination of the sector) 2. REBs (Coordinate planning and operation of the regions)

	<u>INDONESIA</u>	<u>PHILIPPINES</u>	<u>THAILAND</u>
1. Legislative framework			
(a) Main entities	1. PLN (National Electricity Authority)	National Power Corporation (NPC) (generation and transmission) Meralco (Manila distribution) National Electrification Administration (NEA) (electric cooperatives)	1. Electricity Generating Authority of Thailand (EGAT) (generation and transmission) 2. Metropolitan Electricity Authority (MEA) (Bangkok distribution) 3. Provincial Electricity Authority (PEA) (distribution for the rest of the country)
(b) Legislation	1. Electricity Act (No. 15 of 85) 2. Government Regulation (No. 18 of 72 and 54 of 81)	Executive Order 193/87	Provincial Electricity Act (1960) - PEA
2. Mechanisms used to administer regulatory policies	1. Director General of Power in Ministry of Mines and Energy (MME) 2. National Energy Board	Office of Energy Affairs (OEA) Energy Regulatory Board (ERB) National Economic Development Authority (NEDA)	1. EGAT reports to the Office of the Prime Minister 2. MEA and PEA report to the Minister of the Interior
3. Ownership of power facilities	PLN - wholly owned Govt corporation	NPC - 100% Govt owned	EGAT, MEA and PEA are all wholly owned government corporations
4. Supervision, responsibilities, composition and resources of regulatory bodies	1. Director General of Electricity and New Energy (DGENE) reviews investment plans and tariffs. 2. National Energy Board coordinates policy and oversees sectoral development	Office of Energy Affairs (OEA)	1. National Economic and Social Development Board (NESDB) (policy and planning) 2. National Energy Policy Committee (NEPC) and National Energy Policy Office (NEPO) (policies and sector coordination) 3. National State Enterprise Committee (pricing) 4. National Energy Administration (NEA) (energy conservation and renewables)

	<u>BANGLADESH</u>	<u>KOREA</u>	<u>INDIA</u>
5. Coordination of sector institutions	MEMR coordinates the sector	1. Ministry of Energy and Resources (whole sector) 2. Electric Power Group Coordination Council (sector entities)	1. CEA/Dept of Power in Ministry of Energy 2. REBs
6. Involvement of regulatory bodies in environmental affairs	MEMR	N.A.	Environmental/resettlement aspects of power projects require clearance by central government most important of which is the Forests Department. Separate State Boards also monitor environmental aspects.
7. Level of Government involvement in sector policies on personnel and investments	Govt's involvement limits BPDB's efficient operation	Traditionally very high but has been reduced in recent years	State Governments exercise a high degree of control over SEBs
8. Incentives to improve sector efficiency and attract private sector investment	Govt has decided to set up separate Regional Distribution Boards and to reorganize and strengthen BPDB's operations. (Private financing of thermal plants is under Govt consideration)	Sector is well managed and highly efficient. No incentives for private sector involvement	Central Government needs to do more to deal with institutional weaknesses. SEBs now required to earn a 3% rate of return after interest expense. Govt is preparing a white paper on private sector regulation. SEBs are permitted under the 1948 Act to purchase from private suppliers.
9. Composition, appointment, powers and duties of boards of directors	Chairman and 5 internal board members with management responsibility	External Board of 9 members	CEA has a 6 member board each with a functional responsibility. REBs to comprise a chairman and representatives of SEBs

	<u>INDONESIA</u>	<u>PHILIPPINES</u>	<u>THAILAND</u>
5. Coordination of sector institutions	1. MME co-ordinates energy sector enterprises 2. DGENE in MME (sector policy and planning)	Bank's energy sector (FY89) study recommended an energy co-ordination council be established to ratify long term plans	1. No one agency has responsibility for the power sector. Decisions are made by consensus between agencies. 2. Load Forecasting Working Group
6. Involvement of regulatory bodies in environmental affairs	MME has an environmental unit responsible for monitoring and enforcing regulations and standards	An Environmental Management Board (ERB) has been established to oversee adherence to the Environmental Code of 1978. ERB needs strengthening to carry out its functions	National Environmental Board issues guidelines
7. Level of Government involvement in sector policies on personnel and investments	Traditionally high level of involvement in setting targets for development, approving plans and budgets, determining tariffs, financing, salaries and fuel purchase	Government corporations are required to follow civil service conditions. NEDA approves their investment plans	Government strictly controls investment planning and borrowing but not day-to-day operations
8. Incentives to improve sector efficiency and attract private sector investment	Interdepartmental energy pricing task force is under consideration. Bank is planning an Institutional Development Review (FY89). Electricity Act No 15 of 85 permits private operators and co-operatives to supply under licence but so far no licences have been issued. Govt has agreed to promote economic co-generation	NPC is required by law to buy from private plants and to establish procedures for implementing private sector generation	Government is identifying means of expanding private participation in the power sector - also considering industrial co-generation burning agricultural wastes. BOOT projects are being considered but policies need to be developed
9. Composition, appointment, powers and duties of boards of directors	PLN has a 6 member board each with a functional responsibility	External board of 7 members, mostly businessmen	1. EGAT - Chairman and 10 other members including the General Manager are appointed by the Prime Minister in a part-time capacity 2. PEA's board comprises up to 9 members appointed by the Council of Ministers

	<u>BANGLADESH</u>	<u>KOREA</u>	<u>INDIA</u>
9. Composition, appointment, powers and duties of boards of directors	Chairman and 5 internal board members with management responsibility	External Board of 9 members	CEA has a 6 member board each with a functional responsibility. REBs to comprise a chairman and representatives of SEBs
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	Considerable Government involvement in operations. Govt seeks to approve most decisions	Autonomy recently increased over operations and budgets. Govt still controls pricing and approval of investment plans but deregulation of pricing has been proposed.	Autonomy of SEBs is limited by State Governments A memorandum of understanding is signed every year between Government and NTPC to set out the parameters of its operations
11. Private sector involvement	Bank has begun a study to help identify opportunities and formulate policies to encourage private sector involvement in the energy sector	Private investors phased out. No known private sector involvement	There are captive (privately owned) plants operated for owner's use. Also some privately owned utilities exist. USAID has identified co-generation possibilities from sugar cane wastes and potential for private investment in gas-fired plants. (See also Annex 3)

	<u>INDONESIA</u>	<u>PHILIPPINES</u>	<u>THAILAND</u>
8. Incentives to improve sector efficiency and attract private sector investment	Interdepartmental energy pricing task force is under consideration. Bank is planning an Institutional Development Review (FY89). Electricity Act No 15 of 85 permits private operators and co-operatives to supply under licence but so far no licences have been issued. Govt has agreed to promote economic co-generation	NPC is required by law to buy from private plants and to establish procedures for implementing private sector generation	Government is identifying means of expanding private participation in the power sector - also considering industrial co-generation burning agricultural wastes. BOOT projects are being considered but policies need to be developed
9. Composition, appointment, powers and duties of boards of directors	PLN has a 6 member board each with a functional responsibility	External board of 7 members, mostly businessmen	1. EGAT - Chairman and 10 other members including the General Manager are appointed by the Prime Minister in a part-time capacity 2. PEA's board comprises up to 9 members appointed by the Council of Ministers
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	Greater autonomy needed for setting of electricity prices, salaries, fuel purchase and corporate decisions	High degree of autonomy - decision making decentralized	Entities have considerable autonomy but government vets planning, contracting, pricing and financing
11. Private sector involvement	1. Proposal for private sector BOT plant using gas is currently under discussion. 2. Substantial private generation from captive plant for owners's use - 44% in 1986/87	1. OEA has had discussions with Ebasco International on co-generation plants 2. NPC has signed letters of intent with Hopewell Holdings of Hong Kong for (2) Bot Projects - a 350 MW coal fired plant and a 200 MW gas turbine	Limited captive generation

Summary of Main Features of Regulatory Arrangements in Europe, Middle East and North Africa

	<u>JORDAN</u>	<u>MOROCCO</u>	<u>PAKISTAN</u>
1. Legislative framework			
(a) Main entities	1. Jordan Electricity Authority (JEA) (generation, transmission and distribution) 2. Jordan Electric Power Co (JEPCO) (distributor for Amman and surrounds) 3. Irbid District Electricity Company (IDECO) (distributor in the northern part of the country)	1. National Electricity Authority (ONE) (most generation, all transmission and about half of distribution)	1. Water and Power Development Authority (WAPDA) responsible for construction and operation of power system except in Karachi and development of water resources 2. Karachi Electricity Supply Corporation (KESC) is responsible under licence for construction and operation of the system in Karachi
(b) Legislation	General Electricity Law 1976 Regulations of MEMR (No. 26 of 1985)	Management and Operations of ONE and local electricity distribution utilities (Regies) under separate Government decrees	1. Electricity Act of 1910 2. WAPDA Act of 1958
2. Mechanisms used to administer regulatory policies	1. Ministry of Energy and Mineral Resources (MEMR) regulates JEPCO and IDECO 2. JEPCO and IDECO operate under 50 yr concession agreements granted by Government 3. Monitoring system of technical and financial efficiency of utilities	1. Ministry of Energy and Mines (MEM) for ONE 2. Ministry of Interior and Information (MII) for Regies	1. Ministry of Water and Power (MWP) 2. National Energy Policy Committee (NEPC) 3. Office of Energy Planning, Economic Coordination Committee (ECC)
3. Ownership of power facilities	JEA - 100% Govt owned JEPCO - private company owned by municipalities, private investors and JEA. IDECO - a semi-private company owned mainly by Government	ONE is govt-owned corporation. The Regies belong to the local communities	1. WAPDA is a semi-autonomous Government owned agency 2. KESC is a private stock company mostly Govt owned or controlled
4. Supervision, responsibilities, composition and resources of regulatory bodies	Ministry of Energy and Mineral Resources (MEMR) (sector policies and co-ordination)	Ministry of Energy and Mines (MEM) (overall planning and development) Ministry of Interior and Information (MII) responsible for oversight of Regies	1. MWP - power sector jurisdiction 2. NEPC - formulates Govt energy policy 3. ECC - reviews investment plans and pricing proposals

	<u>POLAND</u>	<u>TURKEY</u>
1. Legislative framework		
(a) Main entities	Power and Lignite Board (WENB) coordinates the 100 enterprises which operate the system	1. Turkish Electricity Authority (TEK) 2. State Hydraulic Works (DSI) 3. Cukurova Electric Co (CEAS) 4. Kepez Electric Co
(b) Legislation	Law on State Enterprises	TEK Law 1312 of 70
2. Mechanisms used to administer regulatory policies	1. Dept of Electric Power and Heating in the Ministry of Industry 2. Ministry of Finance 3. Planning Commission	1. Ministry of Energy and Natural Resources (MOE) 2. State Planning Organization (SPO)
3. Ownership of power facilities	WENB is a Government-owned monopoly.	1. TEK and DSI are state owned enterprises 2. CEAS and KEPEZ are concessionary companies largely owned by TEK
4. Supervision, responsibilities, composition and resources of regulatory bodies	1. Ministries of Industry and Finance are responsible for energy prices and regulation of power enterprises 2. Planning Commission and WENB make investment decisions	MOE - coordinates electricity agencies SPO - reviews investment programs

	<u>JORDAN</u>	<u>MOROCCO</u>	<u>PAKISTAN</u>
5. Coordination of sector institutions	1. Coordination by MEMR is expected to be improved as it develops its capabilities 2. Ministry of Planning coordinates sector plans and foreign borrowing	Govt has to set up technical committees to prepare electricity price reforms and facilitate coordination of investments of ONE and the Regies under Public Enterprise Rationalization Loan (PERL)	1. Energy Wing of Ministry of Planning and Development provides for coordination on energy matters 2. MWP coordinates WAPDA and KESC
6. Involvement of regulatory bodies in environmental affairs	N.A.	N.A.	N.A.
7. Level of Government involvement in sector policies on personnel and investments	Government involvement has been limited - private utilities can offer better salaries than public sector. Prospect of JEA being subject to a new Civil Service Code in 1991 would greatly increase Government involvement. In the longer term, Government and JEA may be interested in corporatizing JEA.	Heavy involvement by Ministry of Finance in ONE and Regies. ONE's contract plan includes provision for gradual loosening of Government financial controls.	There are too many ministries and committees responsible for planning and monitoring of enterprises
8. Incentives to improve sector efficiency and attract private sector investment	The sector entities are establishing uniform accounting and distribution system data bases. MIS and corporate planning are being developed. No private investment is currently proposed.	Transfer of assets to the private sector is not envisaged.	1. A long-term energy strategy formulated with the Bank's assistance outlines a programme of reforms to be implemented over 5 year intervals 2. Govt plans to re-organize WAPDA separating its distribution functions under a new corporation. KESC would then follow and be restructured as a private generation company to sell its output to WAPDA and the new Karachi distribution corporation 3. Govt is encouraging BOOT projects involving private investors using limited recourse financing. A fund is being set up under Bank's Private Sector Development Project

	<u>POLAND</u>	<u>TURKEY</u>
5. Coordination of sector institutions	1. Ministry of Industry 2. MEMB and its National Dispatch Center	1. Ministry of Energy and National Resources
6. Involvement of regulatory bodies in environmental affairs	N.A.	N.A.
7. Level of Government involvement in sector policies on personnel and investments	System is highly centralized with resources allocated by the central Government	TEK's has little freedom to set personnel policies and salary scales and has been subjected to close scrutiny of Government. Govt has agreed to external audit of TEK's accounts
8. Incentives to improve sector efficiency and attract private sector investment	Govt is keen to establish a system of regulated markets and move away from central planning. Some re-organization of sector enterprises is possible such as separating generation and transmission from distribution	1. Govt not willing to set up a new regulatory commission or to make accounting changes at TEK 2. Law 3096 permits private enterprises to construct and operate power plants 3. Govt has established a BOT model and invited private participation in infrastructure projects

	<u>JORDAN</u>	<u>MOROCCO</u>	<u>PAKISTAN</u>
9. Composition, appointment, powers and duties of boards of directors	JEA has an 8 member board JEPCO has an 11 member board IDECO has an 12 member board	ONE has an 8 member board. They meet about 3 times a year.	WAPDA's board has 4 members who are government appointees with specific functional responsibilities
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	High degree of autonomy but this has been much reduced as part of an overall Government effort to control spending by public enterprises	Substantial restrictions on managerial autonomy of ONE and Regies.	Under the Government's long-term energy strategy, decision making is to be decentralized and more administrative and financial autonomy given to sector companies. WAPDA has enjoyed a high level of autonomy except for tariff changes, investment plans and capital budgets
11. Private sector involvement	Some large enterprises with captive plants sell power to the public system in peak periods	Industrial generators, mostly publicly-owned, supply about 13% of electricity mainly for their own needs but there is some interchange with ONE	KESC is planned to be restructured as a private generation company under Bank's Private Sector Development Loan Private sector involvement in projects estimated to require \$1.8 million is in varying stages of development

	<u>POLAND</u>	<u>TURKEY</u>
9. Composition, appointment, powers and duties of boards of directors	1. WEWB has a supervisory board of 25 members including representatives of Govt Ministries, banking institutions and main energy users	TEK has a 5 member board and has recently agreed to strengthening of its board
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	Some degree of autonomy is given to power station managers over allocation of profits. Any reorganization would likely seek increased autonomy and accountability	Limited autonomy
11. Private sector involvement	No private sector involvement	A 1400 MW coal-fired thermal plant is being planned on a BOT basis by a consortium led by Westinghouse (USA) and Chuyoda (Japan) with 30% Government ownership. A Bechtel sponsored project is also being negotiated

Summary of Main Features of Regulatory Arrangements in Latin America and the Caribbean

	<u>BRAZIL</u>	<u>CHILE</u>	<u>COLOMBIA</u>
1. Legislative framework			
(a) Main entities	1. Eletrobras (holding company and sector development bank) 2. Subsidiaries of Eletrobras FURNAS, CHESF, ELETRONORTE, ELETROSUL (bulk suppliers), ESCELSA and LIGHT (distribution) 3. About 25 state owned utilities (generation and distribution)	1. CORFO - Govt owned holding company 2. ENDESA - 80% of generating capacity, most of the transmission system 3. COLBUN SA - operates hydro plant 4. CHILECTRA-GENERACION and PEHUENCHE S.A. - both generation companies 5. CHILECTRA-METROPOLITANA and CHILECTRA-VALPARAISO REGION - distribution companies serving Santiago and Valparaiso 6. Economic Dispatch Center (CDEC-SIC)	1. ISA - generation and transmission utility 2. EEEB (Bogata) EPM (Medellin) municipal companies 3. CVC - multi-purpose state corporation 4. ICEL - Government owned holding company for 13 smaller utilities 5. CORELCA - Government owned holding company for 9 utilities
(b) Legislation	1. 1937 Water Code 2. Decree 41019/1957	1. General Law of Electricity Services (Decree No. 1 of 82)	
2. Mechanisms used to administer regulatory policies	1. Ministry of Mines and Energy (MME) and its National Dept of Water and Energy (DNAEE) 2. The National Commission for Energy (CNE) 3. Ministry of Finance (MOF) 4. Eletrobras	National Energy Commission (CNE) Ministry of Economy Development and Reconstruction	1. Ministry of Mines and Energy (MME) through its Electric Power Division 2. FEN - Government financial intermediary for financing power investment programs 3. JNT - The tariff board in the National Planning Department
3. Ownership of power facilities	Eletrobras and its subsidiaries are Federal agencies and the state companies are largely owned by their Governments	CORFO holds Govt shares in 1. ENDESA - largely privately owned 2. COLBUN SA - 98% govt owned 3. PEHUENCHE SA - to be privatized 100%	1. ISA - owned by the regional and municipal companies 2. EEEB (Bogata) EPM (Medellin) municipal companies 3. CVC - multi purpose state corporation 4. ICEL - Government owned 5. CORELCA - Government owned 6. All major power plants (i.e. above 100MW) and trunk transmission lines will be owned by ISA.

	<u>COSTA RICA</u>	<u>JAMAICA</u>
1. Legislative framework		
(a) Main entities	1. Costa Rican Electricity Institute (ICE) plans and operates generation and transmission and supplies 38% of distribution 2. Compania Nacional de Fuerza y Luz (CNFL) - distribution (42%) 3. Four rural electric co-ops (10%) 4. Two municipal companies (10%)	Jamaica Public Service Company Limited (JPS) responsible for public generation, transmission and distribution - under license
(b) Legislation	Law 258 of 1941	N.A.
2. Mechanisms used to administer regulatory policies	1. National Electricity Service (SNE) 2. Ministry of Natural Resources Energy and Mining (MINEREM) 3. National Council of the Energy Sector (CNSE) 4. Secretariat for Energy Sector Planning (SESP)	1. Ministry of Public Utilities and Transport (MPUT) 2. Ministry of Mining Energy and Tourism (MMET)
3. Ownership of power facilities	ICE is a Government owned institute CNFL is a 99% owned private subsidiary of ICE	JPS is a 99% owned Govt corporation

	<u>BRAZIL</u>	<u>CHILE</u>	<u>COLOMBIA</u>
4. Supervision, responsibilities, composition and resources of regulatory bodies	1. ELETROBRAS - expansion plans and operations 2. DNAEE - regulatory agency 3. CNE - energy policy 4. MOF - tariff increases	1. CNE - regulates and coordinates sector plans 2. Ministry of Economy is responsible for structure and level of tariffs	National Social and Economic Policy Council (CONPES) defines investment priorities. This role is shared with National Planning Department.
5. Coordination of sector institutions	Eletrobras and MME through DNAEE	National Planning Office (ODEPLAN) coordinates planning of state entities	A government Monitoring Committee has been established to monitor the utilities' efficiency, and an Energy Board has been established.
6. Involvement of regulatory bodies in environmental affairs	Eletrobras has guidelines for hydro schemes which have not been fully enforced. It has prepared an environmental master plan with the Bank's assistance	More Government involvement is needed in the form of guidelines and legislation. Bank has recommended CNE, ODEPLAN and CORFO should enhance their role	Inderena - a specialized institute of Ministry of Agriculture - approves major development projects. ISA's Environmental Office designs and monitors implementation of the Power Sector Action Plan on environmental and resettlement.
7. Level of Government involvement in sector policies on personnel and investments	Govt makes most major decisions based on macroeconomic concerns. Special policies - orderly process has taken over from Eletrobras major investment decisions. Federal Govt also limits borrowings and controls wage increases	Govt has promoted efficient use of electricity through realistic pricing policies - orderly process of divestment has been very effective. It regulates prices of the distribution companies only and is establishing comprehensive information systems	Limited involvement in day-to-day operations.
8. Incentives to improve sector efficiency and attract private sector investment	Govt is reviewing tariffs, legal rate of remuneration scheme and participation by the private sector. Self producers are permitted to sell their surplus power to the grid where required by utilities	Govt has agreed to CNE updating the legislation relating to concessions and operation of electricity services. Govt has a policy of divestiture to increase private sector involvement. Major consumers bargain with suppliers on prices	Govt has set up an Energy Board and has established a committee for monitoring performance of sector companies to enhance its role. No incentives for private sector financing

	<u>COSTA RICA</u>	<u>JAMAICA</u>
4. Supervision, responsibilities, composition and resources of regulatory bodies	SNE regulates electricity, water, telecommunications and sewerage tariffs and grants concessions. MINEREM is the governing agency.	MPUT is the regulator MMET is responsible for policy, fuel pricing and studies.
5. Coordination of sector institutions	National Council of the Energy Sector (CNSE) coordinates agencies implementing energy developments	Ministry of Public Utilities and Transport
6. Involvement of regulatory bodies in environmental affairs	N.A.	N.A.
7. Level of Government involvement in sector policies on personnel and investments	National Budget Authority oversees utilities income and expenditure monthly, approves budgets and borrowings, hiring of personnel and investment levels	MPUT is closely involved in JPS financial and investment planning
8. Incentives to improve sector efficiency and attract private sector investment	USAID has supported studies which showed that sugar cane residues and mini hydro plants are suitable for private sector development. However incentives are needed and price utilities willing to pay is critical. A Private Power Committee to promote private power development has been recommended	No clear incentives. Govt role is fragmented under 2 ministries. The power sector lacks qualified professionals

	<u>BRAZIL</u>	<u>CHILE</u>	<u>COLOMBIA</u>
9. Composition, appointment, powers and duties of boards of directors	1. Eletrobras has a 12 member board 2. Most of the power companies have 6 member boards	Endesa's board comprises 7 members	1. ISA has a board of 5 members decisions based on consensus 2. EEBB and EPM have 7 members
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	Autonomy has been limited. Under the Bank's first sector loan, Govt has been looking at autonomy and concentration of responsibility. Study is now due in 1989. The new constitution (1988) foresees a higher degree of autonomy for state-owned companies	Endesa has a high degree of autonomy. Govt policy is one of de-centralization and encouragement of financial autonomy	Utilities have considerable autonomy
11. Private sector involvement	Govt policy has been towards nationalization and centralization of utilities. There was significant private involvement in the past through ownership particularly of distribution utilities. Private sector participation is presently being considered.	Private and institutional investors have acquired equity in generation, transmission, distribution and new project entities. Investors include construction companies, pension funds and employees of power companies	There is substantial private sector generation from captive plant because of power shortages

	<u>COSTA RICA</u>	<u>JAMAICA</u>
9. Composition, appointment, powers and duties of boards of directors	ICE has a 7 member Directing Council with 4 standing commissions covering specific functions	JPS has an 11 member board with responsibility for company affairs
10. Degree of autonomy for utilities, especially delegation of authority to implement policies	Autonomy is limited	N.A.
11. Private sector involvement	Private sector involvement is dependent on clarification of Govt policies on licencing, the legal framework, contractual terms and the purchase price	US consortium is negotiating to build 35 MW plant using sugar cane residues and fuel oil. Govt has no policies on private power development

REGULATORY EXPERIENCE AND PRIVATE SECTOR PARTICIPATION
IN THE INDIAN POWER SECTOR

1. Background

1.01 India has been facing severe power shortages due to inadequate power generating capacity. In 1986 this shortage was estimated to average about 10% country-wide and was estimated to be responsible for a loss in total electricity production of about 12%.

1.02 Financing of power developments has been constrained by a severe shortage of finance. The central and state governments are already contributing 30% of their total budget to energy investments - more than to any other sector. The state electricity boards are incurring losses, and facing technical and financial difficulties which constrain their efforts to improve supply. These problems make it unlikely that the public sector can provide adequate supply in the near future.

1.03 There is already substantial private sector power generation in India but it takes the form of self-generation from captive plant, often using inefficient diesel generators, to meet the owner's requirements. These plants generally do not sell to the grid e.g. Bharat Aluminum Company 270 MW and National Fertilizer Industries 30 MW. In addition there are examples of groups of industries and private firms setting up their own plants e.g. Tamil Nadu with a 420 MW power station owned by twelve private firms.

Private companies operate under licence from State Electricity Boards as municipal utilities in locations such as Bombay, Calcutta, Ahmedabad and Uttar Pradesh. Eg. Tata Electric Company in Bombay.

2. USAID Study and Workshops

2.01 Because of the difficulties obtaining finance for expansion, India has been considering encouraging private electricity generation for sale to the grid. This led to USAID support for a study of non-utility power generation in the Indian States of Gujarat and Maharashtra focusing on the role of the private sector. A report on the potential impediments and policy issues was prepared by consultants Hagler, Bailly and Company in June 1987.

2.02 As a follow-up to this study, workshops were held in New Delhi and Ahmedabad to present the study results and obtain the views of participants.

2.03 The study demonstrated that non-utility power generation ie. privately owned plant built to sell power to the grid, could eliminate power shortages in these states. Private sector generation could be provided from large combined cycle plants, using domestic gas (potentially to meet a major portion of system needs), industrial co-generation (potentially 2000 MW between 1986-1996) and plants using sugar cane wastes (potentially 425 MW between 1986-1996).

3. Impediments to Private Sector Investment in Power Plants

3.01 Five major impediments to private sector investment in power plants were identified.

(a) Lack of a Clear Government Policy

Approval procedures are time-consuming. There are few procedures or precedents for selling power to the grid.

(b) Difficulty in Financing Power Projects

Obtaining funds is very difficult for private investors. Government regulations limit returns on power projects to 2% above the prevailing interest rate which in 1987 was about 12%. Investors in other sectors typically seek returns of 20-25% on equity. Import restriction and duties also discourage private investors.

(c) Uncertainty of Fuel Supplies and Availability

Current Government policy limits access to natural gas and complicated licencing procedures hamper access to coal. Access to suitable coal supplies requires extensive paperwork.

(d) Uncertainty of Equipment Availability and Quality

Government regulators encourage use of domestic power equipment that is of lower quality than imports and often only available after long delays.

(e) Uncertainty about the Terms of Interconnection to the Grid

3.02 Policies and regulations giving private generators access to the grid or to customers, covering technical requirements for interconnection are not spelled out. Procedures for determining the cost of back-up power and the buy back rate ie. the price a utility pays for independently generated power, need to be established.

4. Recommendations of USAID Study

4.01 Accordingly USAID recommended measures to overcome these impediments.

(a) Establish clear policies for private generators.

(b) Preparing guidelines for defining the price the State Electricity Boards (SEBs) should pay for private supplies based on the avoided cost of State Electricity Boards.

(c) Permit industry to use gas for power generation.

(d) Reconsider the limit on returns on power investments.

- (e) Consider financing schemes such as leasing.
- (f) Encourage international competitive bidding for private systems.
- (g) Consider joint ventures with foreign manufacturers to develop and locally manufacture power systems based on waste fuels from sugar.
- (h) Arrange training and technical assistance to assist definition of avoided costs and on interconnection requirements and on parallel operation with the grid.

4.02 The report also recommended publicity for private sector generation projects, demonstration projects be undertaken, studies in other states, assessment of exclusive private generation for industrial complexes and analysis of the cost of load shedding.

4.03 At the USAID workshops, participants agreed there was a large potential for non-utility power generation in India. Some government representatives felt that current policy guidelines were adequate. Some felt that industry should build its own plant independent of the grid and make its own arrangements for stand-by capacity. Current legislation permits installation of captive plant and by 1995 the consultants consider that 40% of power used by energy intensive industries could be provided by this means.

4.04 The Electricity Supply Act 1948 permits private generators to distribute power under licence and State Boards have policy guidelines for the purchase of power from private sources. Some government officials thus considered there are no major impediments to non-utility projects.

4.05 Private sector and industry officials were critical of existing policies and identified existing captive plant that could be selling to the grid if arrangements were in place. There was in the main general agreement on most of the findings of the USAID study.

5. Recommendations Arising from USAID Workshops

5.01 Recommendations arising from the workshops included:

(a) Policy Measures

Review of the Electricity Act especially provisions relating to the grid, "wheeling" arrangements, rate of return on private power investments and "excise taxes" on "self generated" electricity. Other policies measures recommended were:

- (i) Develop non-utility generation policy covering sales to the grid and parallel operation by independent generators, simple licensing procedures, terms of interconnection, methodology for determining price to be paid by utilities, arrangements for back up or standby power and changes to be made by State Boards.

- (ii) A study of "avoided cost" pricing in the Indian context.

(iii) Review of existing technical and financial interconnection arrangements between SEBs and private generators.

(iv) Establish an independent body to resolve differences between State boards and non-utility generators.

(b) Natural Gas Availability and Price

The policy on the use of natural gas for power generation should be clarified.

(c) Financing

Examine incentives to attract private capital for power generation by relaxing the rate of return ceiling on power generation investments.

(d) Technology

Encourage selected power generation technologies suitable to India using international competitive bidding, e.g. for gas turbines.

(e) Training

Training should be provided on planning and technical issues such as determination of purchase price and interconnection technologies.

(f) Demonstration Projects

Projects should be developed to reduce barriers to non-utility generation. USAID are particularly interested in a 110 MW plant being constructed at Faridabad near Delhi which has been financed by a mix of public and private financing as a demonstration of a non-utility generation project.

6. Government White Paper on Private Sector Regulation

6.01 Possibly in response to the USAID workshops and representations by the private sector, the Government is reported to be preparing a "white" paper on private sector regulation of electric power investments. This paper is examining incentives to encourage private sector financing for electricity generation such as return on equity investments, depreciation rates and improved land acquisition procedures. Release of this paper will be an important indicator of the Government's support for private sector participation. Until it is released and reactions obtained from potential investors, it is difficult to predict the extent to which private financing will accelerate the development of non-utility power generation for sale to the grid.

7. Future Outlook for Private Sector Contributions to Power Development Needs

7.01 Private sector participation clearly does have considerable potential for reducing financial constraints on public supplies in India and

reducing existing power shortages. It is already clear that captive plant constructed by industry to meet its own needs could be an increasingly important source of electricity. This is especially so for energy intensive industries, which as previously mentioned, the consultants sponsored by USAID expect to obtain 40% of requirements from their own plants by 1995. This of course will increase the interest of existing industries in selling surplus power to the grid and obtaining standby capacity from utilities. This no doubt will be reflected by bringing greater pressure on Government for reforms to encourage co-generation of this kind.

7.02 Nevertheless, it has yet to be shown that the Government is convinced of the potential for non-utility generation and committed to reforms to encourage it. There is concern that the private sector would tap existing financing sources away from public projects and thus not provide much additional funding at all. If privately financed projects are permitted to earn higher returns than the public sector can presently, then it would be reasonable to expect public sector projects to be permitted to share the same opportunities. Unless private involvement led to lower cost supply through greater efficiency, the net effect might be to raise the tariff. Such an outcome may not be welcomed by Government.

List of Documents Reviewed

Private Sector Power Generation - Non-Utility Generation in the Indian States of Gujarat and Maharashtra: Potential Impediments and Policy Issues prepared by Hagler Bailly & Company (USAID - June, 87)

Summary of Workshops on Non-Utility Power Generation in India prepared by Hagler Bailly & Company and the National Productivity Council (USAID - February, 88)

REVIEW OF EXPERIENCE WITH PRIVATE SECTOR PARTICIPATION
IN DEVELOPED COUNTRIES

1. The Electricity Supply Industry in the USA since the PURPA Legislation of 1978
2. Privatizing the UK Electric Power Industry
3. The Corporatization Approach in New Zealand
4. Public Sector Reform in Australia and its Impact on the New South Wales Electricity Supply Industry

1. THE ELECTRICITY SUPPLY INDUSTRY IN THE USA
SINCE THE PURPA LEGISLATION OF 1978

1.01 The power industry in the USA comprises some 3300 enterprises and includes investor-owned private utilities, municipal utilities, rural electric co-operatives and state and federal power agencies. Over 75% of the systems are privately owned. Investor-owned utilities operate as franchised monopolies selling power to one another and to publicly-owned distribution companies. State and municipal utilities have created joint co-ordinating agencies in many states to plan and finance new plant.

1.02 The activities and rates of utilities are regulated by State Public Service Commissions. Federal legislation covers many aspects of supply and the Federal Energy Regulatory Commission has jurisdiction over tariffs, on inter-state sales and inter-company sales within states. State power agencies are largely self regulating.

1.03 In practice inefficiencies have arisen from state regulation because of political and local interests. Rates tend to rise when new plant is commissioned contrary to the needs for economic efficiency. There has been general dissatisfaction with regulation which has tended to stifle competition.

PURPA Legislation

1.04 Following the energy crisis of the early 70's the Public Utilities Regulatory Policies Act of 1978 (PURPA Legislation) was enacted to overcome regulatory, economic and constitutional barriers to cost effective co-generation by encouraging small private power developments. In fact it has unleashed forces for restructuring the US power sector in the 80's.

1.05 The Purpa Legislation obliges electric utilities to purchase power from small producers and co-generators at realistic rates (buy-back rates) based on the utilities avoided costs of power generation. It also requires utilities to sell back-up or standby power and interruptible power to co-generators. Small producers must use a renewable energy source for at least 5% of production and be under 80 MW capacity.

1.06 At first, progress was slow due to opposition from utilities who felt that traditional monopoly markets were threatened. However after initial attempts to challenge the legislation failed, some 24000 MW of non-utility generation had been developed under PURPA legislation up to 1987.

1.07 Co-generators have shown that they can build plants on time and within budget that utilities can rely on as a source of supply. Some problems have occurred with pricing where utilities have over or under estimated their avoided costs, but generally more flexible and competitive pricing at the bulk level has been achieved.

1.08 Success of the PURPA legislation has been due to generous tax credits and subsidies especially for renewable energy. It has encouraged

calls for further deregulation and accelerated the momentum towards more consumer choice, competition and higher economic efficiency. Utilities are moving from prices based on embedded costs and are being supported by revised regulations of the Federal Energy Regulatory Commission. Options such as spot pricing, bidding processes and rate shopping have developed as commercial and industrial users signal willingness to pay more for higher reliability. Wheeling of excess power has increased and companies have been formed to buy and sell electricity.

Privatization in the USA

1.09 The Federal Government in the USA has been trying to sell the six federal agencies which market hydro electricity from multipurpose projects namely:

Tennessee Valley Authority
Bonneville Power Administration
Western Power Administration
South Western Power Administration
South Eastern Power Administration
Alaska Power Administration

1.10 The Administration's efforts to sell these agencies has met fierce resistance in Congress, which is concerned that privatization would lead to substantial rate increases. The purpose of the proposed sales is to raise money to reduce the burden of the Federal deficit and to pay off part of the national debt.

1.11 Arguments put forward by opponents of the sale claim that Federal power projects pay their way and do not impose a drain on the budget. They fear that properties would be sold well below their real value and argue that private owners are no more efficient than publicly owned utilities.

1.12 It is expected that the smallest of the agencies, South Eastern and Alaska, could be sold before the end of 1989.

Overview of the American System of Privately Owned Utilities

1.13 A fact-finding team from the Electrical Power Engineer's Association (UK) reviewed the American system of regulated public electric utilities in 1986 and reached the following conclusions:

- (a) It gives consumers more access to the decision making process.
- (b) It is also cumbersome, increasingly interventionist and short-sighted.
- (c) It is not clear whether responsibility to provide electricity rests with the utilities or the State Public Service Commissions.

- (d) Conflicts between investors who want to maximize profits and consumers who demand lower prices has led to increased regulation thus restricting the freedom of utilities to manage.
- (e) Utility managements are postponing new projects as much as possible and focusing mainly on meeting current needs.

1.14 The Director of Energy and Environment Center at Harvard University, Mr Irwin Stelzer in a presentation to the Pacific Gas Association presented his views of the US electricity industry. He noted that changes in regulatory policies had shifted the risks to investors who could no longer be assured that investments would earn a reasonable return whether those investments were needed or not. Independent power producers are becoming a force as the industry is now relying more on competition and bidding to set prices. In the past the US has looked to Government regulation to control prices and to limit risks. The solution he suggested is to get prices right to reflect economic costs and thus avoid Government controls, subsidies, shortages and gluts.

List of Documents Reviewed

Public and Private Electricity? The American Experience - Electric Power Engineers' Association - July, 1986

Recent Developments in the US Power Sector and their Relevance for the Developing Countries - M Munasinghe and A Sanghvi (World Bank - February, 89)

2. PRIVATIZING THE UK ELECTRIC POWER INDUSTRY

2.01 On 25 February 1988 the British Government presented to Parliament a White Paper on proposals for the privatization of the electricity supply industry in England and Wales. With assets totalling STG 37 billion, the proposed restructuring and sale represented the largest privatization project ever undertaken.

The following summary of the Government's White Paper sets out the existing and proposed structures of the electricity supply industry, the stated reasons behind and benefits of privatization, and the new regulatory environment.

Existing Industry Structure

2.02 The electricity supply industry in England and Wales is organized as follows:

- * The Central Electricity Generating Board (CEGB) which supplies some 95% of power requirements from its power stations and owns and operates the "super-grid" transmission system, including the links with France and Scotland.
- * Twelve Statutory Independent Area Boards, each responsible for the distribution of electricity from the high voltage grid to the final customer through their distribution networks.
- * The Electricity Council, made up of the Chairman and two other members of the CEGB, the Chairmen of the Area Boards, and a small number of full-time members, which exercised a co-ordinating role on matters of industry-wide concern.

2.03 The CEGB has a statutory obligation to provide bulk supplies of electricity to the Area Boards, which in turn have a statutory duty to plan and carry out the distribution of electricity. In addition to its co-ordinating role, the Electricity Council has specific responsibilities for the central management of finance and taxation, industrial relations, research and development, national marketing and advice to Government.

2.04 The White Paper sets out a number of concerns which the Government has in relation to the current organization of the electricity supply industry. The first concern relates to the CEGB's monopoly in generation and the Government's views are encapsulated in the following paragraph from the White Paper:

"Despite the attempt by the Energy Act 1983 to introduce more competition, the industry remains an effective monopoly in areas where this is unnecessary and harmful to the interests of customers. Because of the legislative framework in which it operates, the industry remains one in which the more important investment decisions are effectively taken by a monopoly supplier, with those who pay the bills having little influence".

2.05 The intention of the British Government has been to end the effective monopoly in power generation and give more influence to the distribution companies and their customers.

2.06 The second area of concern, which is raised in the quoted paragraph, has its basis in the CEEB's statutory obligation to supply. While this obligation is intended to ensure security of supply, it has had some important consequences. Because the CEEB has had to ensure that it was able to generate sufficient electricity to meet its statutory obligation, it effectively has had control within the industry to determine power station investment. Furthermore, because it also has had to ensure that electricity is delivered, the CEEB has had to own and control the grid, even though this discouraged potential competition.

2.07 Thirdly, the Government outlined what it sees as a further weakness in the present structure of the electricity supply industry in that the Government of the day has wide-ranging powers to interfere in the running of the industry. The White Paper states that "in the private sector, the industry will be free of Government intervention in its day to day management, protected from fluctuating political pressures, and released from the constraints on financing which public ownership imposes."

2.08 While the Government has identified weaknesses which it believes its privatization proposals will overcome, it has also identified two key features of the present organization which it intends to retain. These are the regional nature of the Area Boards which will remain responsible for the distribution of electricity, and the national grid with its central role in scheduling and directing the use of stations and power flows in the transmission system.

Proposed Industry Structure and Operation

2.09 The proposed structure of the electricity supply industry will comprise:

- * A substantial new generating company, formed from 30% of the CEEB's existing capacity, and including a broad spread of coal, oil and gas turbine plant of various sizes and ages.
- * The remainder of the CEEB operating as a separate company, owning the remaining 70% of existing generating capacity, including the nuclear stations.
- * Other existing and potential private generators, who will generally contract with the distribution companies, the grid company, or large customers.
- * A separate grid company owned by the distribution companies which will operate and own the "super-grid" transmission system, the CEEB's interests in the interconnectors with Scotland and France, and pumped storage stations.
- * Twelve distribution companies, based on the existing Area Boards, which will also have the right to generate themselves where this does not create local monopolies in the production and supply of electricity.

2.10 As future commercial relationships between the distribution companies and generators will be governed by contracts the Government sees no continuing role for the Electricity Council.

2.11 Under the new structure each distribution company will have a statutory obligation to supply in its area, the national grid will be maintained and will retain its central operational role, and distribution companies or large customers will be able to negotiate with the privatized CEGB companies or other private generators of electricity. The distribution companies will also be free to generate electricity themselves or enter into joint ventures.

2.12 The Government sees a strategic need to ensure that the industry is not unnecessarily exposed to future price shocks by relying too heavily on fossil-fuel generation, and therefore intends to incorporate in its privatization legislation an obligation on the distribution companies to contract for a specified minimum proportion of non-fossil fuel, viz: nuclear generating capacity.

2.13 Although the grid company will operate in much the same way as the present National Grid Control and Transmission Division of the CEGB, there will be a difference in that the company will operate on the basis of contractual relationships with generating and distribution companies.

2.14 These arrangements will be for the parties to negotiate, and two approaches are suggested as being workable. One would involve distribution companies contracting for supply from the grid company which in turn would contract for capacity and energy supplies from generating companies. The other approach would be for distribution companies to contract directly with generating companies, with the grid company being involved for technical reasons and for setting connection and transmission charges. The Government considers that these approaches are not mutually exclusive and both may develop side-by-side.

Regulatory Environment

2.15 The Government has proposed a regulatory regime which it believes will promote competition and safeguard the interests of customers.

Under the regulatory changes outlined the Government will:

- * Introduce a yet-to-be-developed system of price control for the distribution companies.
- * Closely regulate common carriage on both the transmission and distribution systems.
- * Revise procedures and standards on safety and quality of supply.
- * Incorporate in the privatization legislation and the licenses issued to the industry the basic statutory right of customers to receive a supply of electricity and the duties of suppliers in providing that supply; and

- * Create a new system of guaranteed standards of service for the distribution companies.

2.16 Of particular interest in the legislative changes is the Government's proposal that should distribution companies fail to meet the guaranteed standards of service, customers will receive a pre-determined level of financial compensation.

Outcome of Benefits of the Changes

2.17 The major outcomes envisaged by the Government are the introduction of competition in generation and the provision of a framework in which further competition will develop. The White Paper states that the proposals will give the distribution companies an incentive to promote competition in generation, the ability to connect competing generators to the system, and a wide choice of generators. Under this situation power station capacity will be contracted for on the basis of competitive tenders and there will be stronger incentives to pursue economic schemes for local generation and for managing peak demand.

2.18 Specific benefits identified in the White Paper are that:

- * Decisions about investment in power stations will be driven by the distribution companies and so will reflect the needs of customers.
- * Greater competition will create downward pressures on costs and prices, and ensure that the customers, not the producer or distributor, come first.
- * Customers will be given new rights, not just safeguards.
- * Management will have more freedom to use their initiative within a clear regulatory framework.
- * The security and safety of electricity supply will be maintained.
- * Investment plans will be subject to commercial tests, and the industry will have access to private sector finance.
- * Employees will have the right to own shares in their industry, and customers will also have that opportunity.

Reaction to Government's Plans

2.19 Commentators on the British Government's privatization plans have identified specific benefits from privatization; managerial efficiency would improve since it would become more profit orientated and concerned to lower costs and increase productivity. In addition benefits could be expected from removal of Government constraints which hinder cost reduction. If the British coal industry was to be privatized, further benefits could be achieved. British coal prices are double those of imported coal. Costs could also be reduced by open-cast coal extraction. Breaking up generation activities into four or five companies would create more competition than with two; a decision

which favors existing producers. The need for regulation of each of the elements of the new electricity sector was seen as crucial. Another suggestion proposed was that Area Boards be broken up and privatized.

2.20 Privatization of the electricity industry will be the largest of the Government's privatizations. The implications for UK industry generally are very significant. E.g. it is the Western world's biggest coal buyer and the largest customer of the UK power plant manufacturing industry.

2.21 In the case of area boards it is likely that they will seek to build their own plants. The Government also hopes that access to the grid will allow new firms to enter the generation business. The effects of privatization are thus likely to be quite dramatic for the power plant industry.

Next Steps

2.22 The UK Government has yet to announce a detailed timetable and plans for its privatization programme for the electricity industry. The proposal outlined however, will require three to four years to implement and even longer to evaluate its success or otherwise. In the meantime it will be useful for the Bank to monitor the progress of implementation and particularly the mechanisms that are established by Government to regulate the industry to ensure electricity prices are constrained and whether competition among generators will lead to increased efficiency.

List of Documents Reviewed

Privatizing Electricity - The Government's proposals for the privatization of the electricity supply industry in England and Wales - February, 88

The Operation of the Power Market - A paper prepared for the Government and Electricity Supply Industry - Alex Henney - November, 87

The Electricity Supply Industry - Background Information - Electrical Power Engineers' Association - November, 87

Why the CEGB should not be Broken Up - Statement to the Secretary of State for Energy prepared by The Electrical Power Engineers' Association - September, 87

3. THE CORPORATIZATION APPROACH IN NEW ZEALAND

Background

3.01 Since coming to power in 1984, the New Zealand Government has embarked on a rapid program of public sector reforms, the key feature of which has been corporatization of a range of public business enterprises many of which previously operated as or under Government departments.

3.02 The principles embodied in the New Zealand corporatization moves are to separate commercial and non-commercial functions, increase managerial responsibility and introduce competitive neutrality between State enterprises and private companies.

3.03 New State Owned Enterprises (SOE's) have been established from undertakings previously operated under a government departmental structure, and include the Electricity and Coal Corporations.

3.04 Although the new SOE's were established under the State Owned Enterprises Act, they are formed as companies under the Companies Act (with some special provisions). Under the ownership provisions of the Act, only the Minister for State Owned Enterprises and the Minister of Finance are able to hold shares in nine of the new enterprises (including Electricorp). Hence privatization is precluded unless the legislation is amended. However, subject to Parliament's authorization, these corporations are able to raise capital by issuing equity bonds (which confer no rights of control).

3.05 The Act sets out the principal objectives for the corporatized enterprises, as well as the powers and accountability of both directors and Ministers. Under the Act the directors must manage the enterprise in a commercial manner consistent with the broad directions established by the shareholding Ministries who in turn are accountable to Parliament. The corporations can enter into agreements with the Government to carry out non-commercial activities in return for an appropriate payment.

3.06 The corporations must table annual statements of "corporate intent" which include information on the plans of the corporation, the scope and nature of activities, financial structure, and estimated dividends. In principle, these reports will also measure the performance of the enterprise against its plans. Final authority with respect to determining the level of dividends and the nature of activities and financial targets for corporations rests with the shareholding Ministers, who also have the power to appoint and dismiss directors.

Corporatization of the Electricity Sector

3.07 Electricorp, amongst other state-owned enterprises, was formed on 1 April 1987 as part of the policy of corporatization replacing the electricity functions of the former Department of Energy. The new company has been structured into four autonomous profit-based business divisions, namely the Production, Marketing and National Grid Divisions and the Power Design and Build Group. The National Grid Division was recently established as a wholly-

owned transmission subsidiary (Transpower) which will formulate its own commercial policies and pricing strategy. As with the other state-owned enterprises, Electricorp reports to the Minister for Finance and the Minister for State-Owned Enterprises and is not responsible to the Minister for Energy.

3.08 The process of establishing the Company and its future business operations were set out in the Deed of Agreement between Electricorp and the respective Ministers, and in its Statement of Corporate Intent. The Corporation's first half-yearly report (for the period to 30 September 1987) reviewed the progress during its first six months and reaffirmed the previously stated corporate strategy. A summary of salient points in these documents is provided in the following.

3.09 The Agreement outlines the sale of assets and contracts by the Crown to the Corporation for NZ \$6.3 billion. The purchase was funded by NZ\$3 billion in debt and NZ\$3.3 billion paid in cash, comprising mostly of capital raisings from the Government through issue of ordinary shares and partly redeemable preference shares. The dividend on the preference shares is set at 6% until 1990 and then will be adjusted according to a predetermined formula. The interest rate on the NZ\$3 billion debt and the required repayment of the principal have also been determined for the first year of operation. In addition, a limit was set on the Corporation's gearing ratio to limit its risk exposure during this period.

3.10 Electricorp's Statement of Corporate Intent outlines its commercial objectives and performance targets. Of significance, the Corporation objectives include meeting consumers' demand for electricity on a commercial competitive basis, rationalizing new investments based on achieving acceptable profit returns, adopting a more commercial pricing strategy and improving the management of its operations and financial assets. Electricorp also aims for a rate of return based on net profits (after interest, tax and preference dividends) to ordinary shareholders' funds of 10%.

3.11 The September 1987 half-yearly report indicated that the Corporation has instituted a commercial pricing approach which includes giving clear signals to customers, with appropriate flexible contractual options. A reduction of 800 jobs has been achieved since the change, mainly through normal attrition and voluntary measures. The assets transfer is understood to be still under way as Electricorp and the NZ Treasury have major problems in reaching agreement on the valuation of the assets. The operating profit of NZ\$490 million for the half year was 10% ahead of that achieved in the first six months of the previous year, though this was partially due to climatic conditions which reduced the need to burn fossil fuel in thermal generating stations, resulting in significant cost savings.

3.12 One of the major difficulties in the process of corporatizing Electricorp has been the valuation of assets. The initial valuations by the NZ Treasury and Electricorp differed dramatically. The negotiations took a long time.

3.13 As a corporation, Electricorp has been able to restructure its organization into autonomous business divisions which will themselves comprise of decentralized profit-oriented business units. This should introduce more accountability to the different levels of management and to a certain extent,

expose the various operational groups to both internal and external competitive pressures, eg, generation groups in the Production Division competing against each other on the basis of costs, prices and performance indicators,

3.14 For the corporatization plan to achieve the intended objectives, there still remains a need to develop for Electricorp an effective performance measurement program. Further, it will be necessary to clarify the relationship between the Corporation and the Government Ministers since the current legislation framework makes Electricorp accountable only to the shareholding Ministers, namely the Minister for State Owned Enterprises and the Minister of Finance, but not to the Minister for Energy. Such arrangements tend to overburden the former Ministers while reducing substantially the authority of the latter.

3.15 The establishment of Electricorp can be seen as a significant step in achieving the required accountability and performance efficiency. However, an increase in competition in the industry is yet to be achieved - although this may be where the largest potential benefits exist.

3.16 Electricorp's monopoly in the transmission business and its sheer size in generation may deter the emergence of serious competition from private generators. Separation of Transpower may act to limit this market power and is probably an important prerequisite for significant private generation.

3.17 There are signs of increasing interest in private generation. CRA, an Australian public company, recently announced a proposal to build a power station with initial capacity of 500 MW in the north of the North Island which will use Australian coal. The New Zealand Government has indicated that Electricorp may also be privatized in the future. Then, while it is likely that the monopoly situation will remain in the transmission area, there will be scope for restructuring the generation sector into a more competitive industry with several different generation companies.

3.18 The retail industry is managed by local government authorities. Initial steps are being taken by the Government to corporatize them and establish commercial objectives and efficiency incentives.

Recent Developments

3.19 The pace of corporatization and privatization in New Zealand is showing outward signs of stress as the NZ Treasurer supported by the Minister for State Owned Enterprises resigned in December 1988. Shortly after Air New Zealand was sold to a consortium of overseas airlines. If the Government proceeds with its objectives of privatizing parts of the electricity sector, it will be interesting to see how such a transfer of ownership will be accomplished and particularly whether Electricorp can achieve the objectives and targets established under its "Statement of Corporate Intent".

**4. PUBLIC SECTOR REFORM IN AUSTRALIA AND ITS IMPACT ON
THE NEW SOUTH WALES ELECTRICITY SUPPLY INDUSTRY**

The Public Sector Environment

4.01 Over the last ten years the public sector in NSW has been progressively adopting financial and administrative reforms to improve accountability, efficiency and effectiveness. Those reforms have embraced management strategy reviews, efficiency audits, program budgeting, establishment of a central borrowing authority. In addition, legislation has been introduced to establish uniform accounting and reporting standards. Large Government authorities have been required to pay annual dividends on equity, achieve a target rate of return and adopt strategic planning and performance targets.

Economic Infrastructure in Australia

4.02 In mid-1988 the Federal Government's Economic Planning and Advisory Council (EPAC) reported on the adequacy of economic infrastructure in the country. In particular their report highlighted overcapacity in electricity generation in NSW because of non-economic pricing and or non-commercial objectives. Poor efficiency was seen to be due to:

- * Absence of competitive pressure.
- * Lack of clear definition of Government objectives.
- * Excessive operational constraints on management.

4.03 The report noted the monopolistic position of the generating authority had resulted in insufficient competitive pressure. It suggested greater competition could be expected to provide incentives for both operational and planning efficiency.

Commercialization, Corporatization and Privatization

4.04 EPAC focused on three approaches for Government business enterprises.

- (a) Where no competitive discipline is possible, increase management autonomy, agree on objectives and goals, develop corporate plans, ensure independent review of efficiency and performance. Where competition exists commercialization or privatization should be considered.
- (b) Commercialization - public ownership would be retained but the enterprise would be expected to operate in a manner similar to a competitive private enterprise:
 - * Applying commercial accounting standards.
 - * Being liable for all taxes and charges as a firm in the private sector.

- * Operating on commercial objectives.
- * Determining prices, wages and paying dividends on commercial principles.
- * Subject to the same capital market disciplines as the private sector.
- * Achieving rates of return comparable to private sector firms.

(c) Privatization - referring in this case to the transfer of ownership in whole or in part from public to private hands. The Government's view is that public monopolies should remain under public ownership but where effective competition is possible privatization or commercialization are viable options.

Trends Toward Privatization in Electric Power

4.05 The report argued that while natural monopolies existed for transmission and distribution it suggested that greater competition in generation can provide incentives for operational and managerial efficiency. In Australia there is significant interest in private electricity generation particularly among major users and coal suppliers. Both stand-alone facilities and co-generation are being considered. In the state of New South Wales (NSW) there are over 20 proposals under consideration ranging from 50 MW to 2800 MW. The proposals range from build own and operate schemes to sell power to the grid; a proposal to buy a partly completed station and sell the electricity production inter-state and to large new industrial customers; to small fluidised-bed plants burning coal washery wastes as fuel.

4.06 Private sector funding was used to finance a large generation plant in NSW in the early eighties. Syndicated bank loans and suppliers credits were used to finance the plant which was built and subsequently managed and operated by the Electricity Commission. However, the power station was leased for 15 years to a partnership with equity funding which comprised private sector companies and the Electricity Commission. All output is purchased by the Commission. At the end of 15 years the station can be purchased by the Commission. In the meantime the partners are guaranteed a minimum return on their investment. This arrangement was based on taking advantage of generous taxation treatment of leased plant and equipment which is now no longer available.

The NSW Commission of Audit

4.07 In April 1988, shortly after assuming office, the present Government set up a Commission of Audit to review the financial position of the public sector. It was asked particularly to look at opportunities for commercialization of these business undertakings. The Electricity Commission as one of the largest authorities in the public sector was a major area of focus.

4.08 Among the Commission of Audit's recommendations were proposals to sell off surplus Government assets to pay off debts and, significantly, corporatization of Government businesses to prepare the way for privatization. The main features of corporatization would be:

- * Government business enterprises being incorporated under the companies code or similar legislation - Government would investigate a consistent legislative framework for establishment of these as corporations.
- * Individual taskforces and consultants would implement corporatization for nominated bodies.
- * Authorities would be run as commercial bodies - the majority or all members of Boards would have commercial experience in running a business. The Chief Executive would be a member of the Board.
- * Management and Boards would be responsible to the Minister who would approve strategic plans and performance indicators.
- * The power of the Minister to direct day-to-day activities would be strictly limited. Managers would have autonomy for decision making and be held accountable.
- * There would be a well defined separation of commercial and social welfare activities with full cost of the latter being met by Government.
- * Adoption of full accrual accounting.
- * Establishment of appropriate gearing ratios (eg, 60:40 debt to equity).
- * Competitive neutrality; eg payment of all taxes and charges for which private companies are liable.
- * Cost/benefit analysis of proposed investment decisions.
- * Commercialization of services.

4.09 One of the key elements of the Commission of Audit's proposals was to establish administrative arrangements for the regulation of corporatized authorities. The Government has decided to establish centralized control through the Premier's Department rather than through the responsible Ministers. Under these arrangements proposed public sector corporations will submit their corporate plans and performance targets for approval of the Premier's Department. They will in turn be held accountable for achieving targets set.

Steering Committee on Government Trading Enterprises

4.10 This Committee was formed about mid-1988 in response to recommendations by the Commission of Audit to develop a framework for corporatization of Government trading enterprises. Some of the benefits of corporatization were seen to include:

- (a) Objectives would be clarified through corporate plans
- (b) Managerial autonomy would be increased as managers would be accountable to boards of directors for achieving corporate targets and performance measures.
- (c) Rigorous performance monitoring would be exercised by Government (using consultants where necessary) over boards of directors.
- (d) Incentives would be provided for managers who performed.

Next Steps

4.11 The Government is moving with caution and has yet to approve any specific projects which would increase private sector involvement in electric power. It is likely that commercialization will be the first step and corporatization will follow only in some instances. Privatization is likely to be limited initially to the sale of surplus assets.

List of Documents Reviewed

Economic Infrastructure in Australia - EPAC, June 1988

A Policy Framework for Improving the Performance of Government Trading Enterprises - A Report by the Steering Committee on Government Trading Enterprises, Sept 15, 1988

ONGOING WORLD BANK ASSISTANCE FOR
POWER SECTOR REGULATORY REFORM

The following listing (which has been extracted from staff appraisal reports) identifies most of the regulatory covenants which have been sought through Bank loans in recent years from the countries reviewed in this study.

AFRICA REGION

SENEGAL - Power Engineering and Technical Assistance Project - May 1, 1980

This project included a study of the optimal organization of the Senegalese power sector including proposals concerning the legal framework of a national entity to be established to replace the existing two companies - recommendations to be made to the Government by December 31, 1981.

SUDAN - Power Rehabilitation Project - June 20, 1985

Government to implement an action programme to improve the National Electricity Company's performance.

ZIMBABWE - First Power Project - November 16, 1982

Government agreed to designate a central authority for sector financial planning.

EUROPE, MIDDLE EAST & NORTH AFRICA REGION

JORDAN - Fourth Power Project - April 10, 1981

Government agreed to submit to the Bank by June 30, 1982 a plan for its review and comments for:

- (i) Strengthening the planning and management of the energy sector.
- (ii) Improving the co-ordination among the energy related institutions in Jordan.

Fifth Power Project - April 14, 1982

Government agreed to review by not later than June 30, 1983 a plan for strengthening the planning and management of the energy sector and for improving the co-ordination among the energy related institutions in Jordan.

MOROCCO - Village Electrification Project - April 25, 1979

Agreement was reached on the definition of the role of the National Office for Electricity (ONE), Ministry of Interior (MI), Interministerial Commission on Rural Electrification (CIER), the Interministerial Commission

for the Co-ordination of Rural Electrification (CICOPER) and the communes in project implementation and rural electrification, policy and planning.

Government and ONE agreed to consult on energy planning and power sector policies.

Power Distribution Project - January 20, 1988

The following commitments in the Public Enterprises Rationalization Loan were also included in this loan:

Government will develop and furnish proposed policies and procedures for oversight of ONE's financial operations by January 1, 1989 and after exchanging views with ONE and the Bank's implement these policies and procedures.

By October 31, 1988 ONE will prepare and furnish to the Bank for its review and comments a three year corporate development plan setting forth its development objectives and performance targets and actions to achieve these objectives and targets and by November 30 after exchanging views with the Government and the Bank conclude arrangements with the Government to implement the plan.

ASIA REGION

INDIA - Power Transmission III Project - February 26, 1973

Government of India agreed to re-activate the Central Electricity Authority (CEA) and transfer to it the power wing of the Central Water and Power Commission (CWPC).

Government of India agreed to constitute an expert committee within three months to consider amendment of the financial provisions of the Electricity (Supply) Act 1948 (providing annual provisions for retirement of debt - tariff guidelines and financial planning objectives).

Second Singrauli Thermal Project - April 25, 1980

Government of India agreed to provide the Bank, by April 1980, 82 steps for power sector improvements including strengthening of the role of the Central sector in generation and transmission, adequate institutional structures and shifting responsibility for generation and transmission from the State to the National level.

Second Korba Thermal Project - June 3, 1981

Government and NTPC agreed on measures to improve performance and co-ordination of the sector including strengthening the role of the Central sector in power generation and interstate HV transmission.

LATIN AMERICAN AND CARIBBEAN REGION

BRAZIL - North East Power Distribution Project (ELETROBRAS) June 10, 1976

The Government and Eletrobras agreed that beneficiaries earnings would be maintained in accordance with current legislation; any change in legislation which would materially and adversely affect the beneficiaries financial position would be an event of default.

This covenant was repeated in subsequent loans subject to various modifications including seeking action on tariffs to allow beneficiaries to earn a return on remunerable assets of at least 10%.

Electric Power System Co-Ordination Project - December 2, 1980

Government and Eletrobras agreed to afford the Bank opportunity to comment prior to any changes to the power sector organization which could substantially affect SINC (the national system for supervision and co-ordination of interconnected operations).

Rural Electrification Project - November 14, 1983

Any change in sector legislation or failure to implement the tariff agreements which may adversely affect the operation or financial performance of Eletrobras, Centrais Eletricas de Minas Gerais SA (CEMIG) or Companhia Paranaense de Energia (COPEL) would be an event of default.

CHESF-FURNAS - Power Transmission Project - May 16, 1985

The Government agreed to implement a medium-term programme satisfactory to the Bank designed to strengthen Eletrobras' role in distribution planning.

South East Power Distribution Project - May 13, 1985

Any change in legislation which would adversely affect the operations or financial performance of the borrower or beneficiaries would be an event of default.

Power Sector Loan - April 18, 1986

Government and Eletrobras agreed to review the institutional structure of the sector (including legislation) and implement recommendations of such a study.

COLOMBIA - San Carlos I Hydro Project & 500 KV Interconnection Project - May 17, 1978

Government agreed to provide a study of the sector including institutional problems before June 30, 1978. No changes in ISA's by-laws would be made without prior agreement of the Bank.

Guadalupe IV Hydro Power Project - May 16, 1980

Amendment of EPM's statutes and adoption of new municipal legislation adversely affecting EPM would be an event of default [repeated in Playas Hydro Power Project - February 9, 1982].

Guavio Hydro Power Project - May 6, 1981

Government agreed to prepare a program to implement the recommendations of DNP regarding the structure and operations of ICEL and its electrification.

Power Development Finance Project - March 8, 1984

Any change in FEN's statutory framework, credit policy and regulations would be an event of default.

Power Sector Adjustment Loan - November, 1987

To improve co-ordination of the sector and instill a national focus to investment decisions, the Government issued a statement on power sector policy. It has also agreed to establish an Energy Board to improve sector co-ordination and to give ISA authority to own, construct and operate all future major generation and transmission projects.

To ensure setting of performance indicators and monitor compliance, Government agreed to establish a Monitoring Committee and also to establish proper linkage between tariff setting and compliance with performance indicators.

CHILE - Puhénche Hydroelectric Project and Alto Jahuel Polpaico Transmission Project

Government agreed to assist with preparation of institutional studies to be executed by CORFO by March 31, 1989 and to exchange views with the Bank on the results of such studies and to put into effect their recommendations.

Government agreed to update regulations in areas related to concessions and operation of electricity services not later than December 31, 1988.

JAMAICA - Second Power Project - January 20, 1978

Government agreed to study relationships between power sector institutions.

APPENDIX TO A REVIEW OF REGULATION OF THE POWER SECTOR
IN DEVELOPING COUNTRIES

Main Features of Regulatory Arrangements in the
Developing Countries Listed Below

AFRICA

Page

a. Guinea-Bissau.....	95
b. Ivory Coast.....	98
c. Kenya.....	102
d. Senegal.....	105
e. Sudan.....	108
f. Zimbabwe.....	110

ASIA

g. Bangladesh.....	112
h. Korea.....	115
i. India.....	118
j. Indonesia.....	122
k. Philippines.....	125
l. Thailand.....	128

EUROPE, MIDDLE EAST & NORTH AFRICA

m. Jordan.....	130
n. Morocco.....	133
o. Pakistan.....	135
p. Poland.....	141
q. Turkey.....	143

LATIN AMERICA & CARIBBEAN

r. Brazil.....	147
s. Chile.....	152
t. Columbia.....	156
u. Costa Rica.....	160
v. Jamaica.....	164

(a) GUINEA-BISSAU
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

Electricidade e Aguas da Guiné Bissau (EAGB) is responsible by law for the production and distribution of electricity and water in all urban areas of the country. However, outside Bissau, two Directorates of the Ministry of Natural Resources and Industry provide electricity and water services.

The EAGB is responsible to the Ministry of Natural Resources and Industry (MRNI) through its two special directorates: -

- the General Directorate of Energy (DGE), and
- the General Directorate of Hydro Resources (DRGH).

There has been no Bank/IDA lending for power to Guinea-Bissau.

Evolution of Sector Organization

Up to 1977, the power supply for Bissau was provided by Companhia de Electricidade Agua de Bissau (CEABIS) and a similar organization provided supply to Bafata.

In June 1977, the Government created the National Institute of Energy (INE) with responsibility for regulation of electricity supply throughout the country. UNDP financial support was arranged over 3 years for a panel of six experts to assist the establishment of the institute.

Subsequently, in mid-1984 MRNI was given responsibility for supervising the power subsector through its Directorate General of Energy and Water (DGEA), which replaced INE in 1983. Its organization (ie. MRNI) contained a mix of policy making, planning, and operational functions that reflected an incomplete separation from EAGB.

The above changes in the sector's organization created uncertainty about functions and responsibilities, and led to poor planning and uneconomic investment decisions. In its June 1985 Energy Strategy Paper, the Bank commented that "the power subsector was in such a state of disrepair that it would be counterproductive to attempt to install new capacity without first completing the process of institutional organization, obtaining accurate information on the existing system and putting it back in working condition.

Accordingly, the Bank recommended that the Government clarify the roles and personnel of DGEA and EAGB by turning EAGB into a financially viable operating entity and DGEA into a planning, regulatory and policy making agency.

Concentration of Supply in the National Power Market

About half of the population of the capital city has access to electricity. In rural areas only about 1% of the population has electricity supply. Due to unreliability of supply most large consumers have installed their own captive diesel plant.

Level of Government Involvement in Sector Policies on Personnel, Operations and Investments

EAGB salaries follow government guidelines and are considerable below those in the private sector. Responsibility for planning, operational and investment functions between EAGB and DGE has been unclear.

Bank's Recommendations for Management of the Sector

In August 1988 the Bank analyzed alternatives for management of the electric power and water supply subsectors and concluded that they should be operated as a joint venture with a foreign partner [affermage concept]. The proposed arrangements were aimed at ensuring the transfer of knowledge and experience to nationals who would subsequently assume control. Alternatives considered were:

- (i) partnership between Government and a foreign organization;
- (ii) concession arrangement with a foreign firm;
- (iii) performance-based management contract with a foreign organization;
- (iv) management by expatriates on a fixed fee basis.

The proposed arrangement would involve incorporation of a new company, reporting to a Board of Directors (comprising Government and foreign partner representatives), to manage, operate and maintain the electricity and water systems.

The company would be owned 51% by Government and 49% by the foreign partner. The Government would retain ownership of the EAGB's assets, and long-term liabilities. Finance for all major capital works would be provided by Government. The company would pay for the use of the EAGB's assets and use these payments to meet its long-term debt commitments. Operational management would be in the hands of the foreign partner. Profits would be shared with the Government.

In this manner, Government would retain ultimate control, participate in decision making and share the risks and benefits of operations with the foreign partner. Profits would be taxed at a maximum rate of 50% and amounts repatriated would be subject to a 10% dividend. The Government would guarantee access to foreign exchange for operations needs, payment of tax and repatriation of profits.

The above proposals have since been superseded by an agreement between Guinea-Bissau and the French Ministry of co-operation for provision of managerial assistance by Electricite de France (EdF) for a period of up to 4 years. To ensure that this arrangement will lead to identifiable and positive results, the Bank included an action plan which was agreed under the Second Structural Adjustment Loan (March 1989).

List of Documents Reviewed

Bissau Power Generation Expansion - Initial Project Brief - September 3, 1980.

Issues and Options in the Energy Sector - August 1984.

Energy Strategy Paper - June, 1985.

Management Options for the Electric Power and Water Supply Subsectors - August 1988.

(b) IVORY COAST
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

Electricity is the technical responsibility of the Ministry of Planning and Industry. It also has a Bureau of Energy Efficiency (BEE) which focuses on load management and energy conservation. According to a 1982 decree which established the Ministry of Industry, a National Energy Commission was to be established as the instrument of co-ordination. It has not been formed.

Under a new electricity law enacted in 1985 the State claimed a monopoly over transmission and distribution of electricity but not for generation. 1/

Energy Electrique de la Cote d' Ivoire (EECI) is responsible for public supply in the country. It is a limited liability company, 94% state owned. About 5% is held by the Central Bank. EECI operates under the concession system, covering the entire country.

Evolution of Section Organization

EECI was established in 1952 as a "mixed economy" company, ie. a combination of private enterprise and state participation. It initially took over all electricity supply functions from the Public Works Department. At the outset its activities were limited to the Abidjan area and up to 1976 it operated some water systems.

In 1980 it was under the guidance and supervision of the Ministry of Economy, Finance and Planning, which had to approve tariffs and investment programs.

Subsequently in 1982 the Ministry of Industry took over supervision of technical functions. Financial supervision remained with the Ministry of Economy and Finance. Rivalry ensued with the Ministry of Mines over development of gas reserves and a co-ordinated approach to electric power development.

In 1985 DCGTx, an autonomous government agency reporting directly to the Presidency, started preparation of a National Energy Plan which has been delayed due to problems with financing and recruitment of consultants. It is now expected to be completed at the end of 1990.

1/ Generation is exempted from this monopoly to leave latitude for self-generation or co-generation by the private sector.

Under the recent Energy Sector Adjustment Loan being prepared, the Bank and the Government have agreed on new documents regulating the electricity sector within the framework of the 1985 electricity law on the preparation of a performance contract.

Mechanisms for Administering Regulatory Policies

EECI holds a licence to takeover, construct and operate power facilities, to levy agreed tariffs and to recover its capital at the end of the concession period. Fixed assets remain the property of the State and must be returned or replaced when the concession expires.

The Central Directorate for Control of Large Works (Presidency) now reviews EECI proposals for financing new investments that require a State guarantee.

In the main, the new legislative framework still needs to be given substance (adoption of a "convention generale" and "cahier de charges") and policy making capabilities and co-ordination of government policies are weak. The sector enterprises have run without adequate internal management and financial controls. EECI has a credible technical record, but has been saddled by severe financial problems and high operating costs. Planning and supervision at the government level has been deficient. However, since mid-1987 EECI has been systematically implementing a rehabilitation program.

EECI's shortcomings have stemmed from the concession system - the original attraction of private capital has disappeared with EECI now virtually a state owned monopoly. Current disadvantages were:

- (i) Divided ownership of assets obscured the view of sector operations and planning was uncoordinated. The government could not accept responsibility for financing assets which the "concessionaire" was unable to.
- (ii) Accounting rules of the concession system resulted in double depreciation of assets.

The advantages claimed for the concession system were, that it permitted and encouraged private enterprise to venture risk capital and operate on commercial lines while still ensuring a measure of State Control and final ownership.

Some of the inappropriate aspects of concession accounting have been eliminated from EECI's accounts, eg. all assets are included in the balance sheet and depreciation is applied to all fixed assets. (The concession is fully described in "The First Power Project/Ivory Coast - June 1980 in Annex 10.)

Elaboration of the legal framework is necessary to ensure EECI's future autonomy and accountability.

Government Involvement in Sector Policies

Serious deficiencies exist at Government level with respect to sector-wide policy formation, rationalization of investment programs and formulation of least-cost development plans. The civil service lacks adequate staff to work on policy formulation. Weak ministries impair effective supervision of energy enterprises.

Accordingly the government has prepared a Statement of Energy Policy which includes the following objectives:

- (i) Clarifying institutional relationships among energy enterprises and their supervisory ministries as well as mechanisms for sector-wide co-ordination.
- (ii) increasing operational efficiency and financial management of enterprises.
- (iii) improving allocation of resources and mobilization of private sector finance.

Based on these objectives, the government has drawn up a program of monitorable actions with appropriate target dates for completion. With respect to EECI this includes:

- (i) Management Reform.
- (ii) Development of the regulatory framework under the 1985 Electricity law.
- (iii) A ten year Investment Plan.
- (iv) A Performance Contract.
- (v) A new Management Information System.
- (vi) A Financial Restructuring Plan.
- (vii) A Tariff Review.

The first performance contract was scheduled to be signed between EECI and Government by September 1988 covering major issues but as of March 1989 had not been signed.

List of Documents Reviewed

Pre-Mission Issues Paper - December, 1983

Issues and Options in the Energy Sector - April, 1985

Structural Adjustment Loan - Appraisal Mission - Back to Office Report -
April, 1985

Power Sector Mission - Back to Office Report - January 1985

Power Sector Rehabilitation Loan - Project Brief - November, 1985

SAR - First Power Project - June, 1980

President's Report - Energy Sector Adjustment Loan - May, 1988

(c) KENYA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministry of Energy (MOE) which was separated from Regional Development early in 1988 oversees energy policy formulation, electric power, oil and renewable forms of energy. Rural electrification is also managed by MOE. The MOE, Ministries of Finance and Planning control the electric power sector through licensing regulations and tariffs.

The electricity industry is composed of six entities:

- (i) Kenya Power and Lighting Company Limited (KPLC) - (40% privately owned) co-ordinates the power grid, purchases in bulk from KPC, TRDC and TARDA and is the sole distributor. KPLC also operates and manages all generating facilities under management agreements with other companies and authorities. KPLC also constructs and operates rural electrification developments.
- (ii) Kenya Power Company Limited (KPC) is wholly government owned and integrated with and managed by KPLC. Its main function is to import power from Uganda and owns the Olkaria Geothermal power generating plant.
- (iii) Tara River Development Company Limited (TRDC) owns four hydro plants on the Tara River.
- (iv) Tara and Athi Rivers Development Authority (TARDA).
- (v) Kerio Valley Development Authority (KVDA).
- (vi) Lake Basin Development Authority (LBDA).

TARDA, KVDA and LBDA have mandates to develop the river basins. KVDA and LBDA do not yet have generating facilities in operation. All are wholly Government owned.

Private organizations and parastatals operate power plants under licence from the MOE. About 20% (in 1981) of total consumption was produced in this way on sugar, tea and coffee estates, the oil refinery, textile factories and large farms.

The geothermal sector is regulated by the Geothermal Resources Act of 1982 which states that geothermal resources are vested in the Government (MOE).

All state corporations are regulated by the State Corporations Bill 1986.

Evolution of Sector Organization

KPLC (formerly East Africa Power and Lighting Company Limited) began as a private company in 1922 and in 1970 the Government acquired a controlling interest when it made a successful bid for all the shares on the London register. It now holds about 60% of the shares.

KPC was formed in 1955 with shares held equally by KPLC, Government and a UK Finance house. KPC's function was to takeover ownership of two hydro stations on the Tara River and construct a 132 KV transmission link with Uganda. In 1971 the Government acquired 100% of KPC's capital. Subsequently its capital was increased to finance the Olkaria Geothermal Project.

TRDC - was formed in 1962 to finance the Kindaruma Hydro Development.

TARDA has constructed the Masinga Dam on the Tara River primarily for irrigation purposes.

Composition, Appointment, Power and Duties of Boards of Directors

KPLC

KPLC has an eleven member board comprising the Managing Director, Government representatives and Kenyan businessmen.

TARDA

TARDA's Board of Directors consists of a Chairman appointed by the President, seven permanent members from various Ministries, General Manager of the Natural Irrigation Board, Chairman of KPLC, the Director of Water Development and five representatives from various sectors who are appointed by the Minister in consultation with the President.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

The Government is seeking to consolidate asset ownership, eliminate institutional fragmentation and pool technical and managerial skills in 2 stages:

- (i) Transferring generating assets of TARDA and KVDA to KPC.
- (ii) Merging KPC and TRDC.

In this fashion those organizations with generating facilities would be merged with KPC.

MOE can issue exploration and exploitation licenses for geothermal resources. Legislation provides for private sector involvement. Implementation regulations for the Act are being prepared (for IDA's comment). To date there has been no direct involvement by private companies in geothermal exploration and development on a large scale. However the planned development of geothermal resources over the next 20 years is likely to increase the interest of private companies.

Under a recent Geothermal Exploration Project, institutional aspects are being examined including a framework for private sector involvement.

List of Documents Reviewed

Issues and Options in the Energy Sector - May, 82

SAR - Kiambere Hydroelectric Power Project - November 15, 83

SAR - Geothermal Development and Energy Pre-Investment Project -
December 2, 1988

State Corporations Bill 1986

Electric Power Act of 1965

By Laws (1988) of the Kenya Power and Lighting Company Limited

(d) SENEGAL
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministry of Industrial Development and Craftsmanship (MDIA) has the main responsibility for the energy sector. It controls the power sector through the Directorate of Energy (DE). The Ministry of Hydraulics is responsible for the development of water resources, including hydro power.

A National Energy Committee chaired by the MDIA Minister reviews energy policy options and makes recommendations to the National Energy Commission which is chaired by the head of state and is responsible for policy decisions. The DE acts as a technical secretariat to the Energy Committee.

SENELEC is responsible for generation, transmission and distribution throughout the country. It is a 100% Government owned public corporation formed in 1983 through a merger of two separate companies.

The present legislative framework for the power sector is covered by the 1983 law establishing SENELEC and by various applications decrees, namely the 1983 decree defining SENELEC's statutes and the 1984 decree establishing the "Clauses et conditions générales du service public de l'électricité" and its annex on electricity tariffs.

Evolution of Sector Organization

Until 1971, a French owned private company, the Water and Electricity Company of West Africa (EEOA) owned and operated the power generation, transmission and distribution facilities in Senegal. The Government acquired this company in 1972 and set up two separate companies:

- (i) Electricite du Senegal (EDS) a wholly owned State corporation responsible for planning and financing the development of the sector's facilities.
- (ii) SENELEC - a company owned 50% by the State through EDS and 50% owned by EEOA. This company was responsible under a Concession Agreement for managing and operating the sector facilities. Under a technical assistance contract SENELEC then sub-contracted the technical operations to EEOA. These arrangements were terminated in 1981 and the Government bought EEOA's shares in SENELEC. The concession arrangement was thus terminated and a single corporation established in 1983 as a wholly owned Government corporation. Some of the features of the concession system were however retained.

Concentration of Supply in the National Power Market

SENELEC supplies power to about 17% of the population.

Supervision, Responsibilities, Composition and Resources of Regulatory Bodies

The DE suffers from a lack of qualified and experienced personnel. A program of technical assistance to be supported by IDA is being prepared. SENELEC has serious internal organizational and managerial weaknesses.

Although the Government does not interfere in day-to-day management, ex post control is exercised by the Financial Controller of the Presidency, Auditors from the Ministry of Finance and by a "Conseil de Surveillance" (equivalent to a shareholders' meeting). The Council comprises the sixteen board members, a Chamber of Commerce representative and three SENELEC staff representatives. Its main function is to approve SENELEC's annual accounts and authorize capital changes. This process is being reviewed in the broader context of public enterprise reform.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

A 1985 EDF study identified major weaknesses in all aspects of SENELEC's organization, management and staffing and led to the formulation of a detailed plan for rehabilitation of SENELEC's corporate management, generation, transmission and distribution, personnel management, finance, and computer services.

A "contrat-plan" or performance contract was agreed between the Government and SENELEC in January 1987 to implement the rehabilitation plan over a three-year period (1987-89). Management contracts have been established under this plan with each layer of management, to secure their commitment to the objectives and targets under the plan. In addition, SENELEC has engaged technical assistance personnel from Hydroquébec under a "twinning" agreement.

No particular incentive has been provided by Government to seek private involvement in the sector.

Composition, Appointment, Power and Duties of Board of Directors

SENELEC's Board of sixteen members consists mainly of Ministry representatives who meet at least three times a year to determine SENELEC's broad policy. Policy implementation is pursued by a six man Management Committee which includes the Chairman and the General Manager. The Government does not interfere in day-to-day management.

Degree of Autonomy for Utilities

Strengthening of SENELEC's autonomy is a long term objective which IDA is planning to address in the future. It already has considerable autonomy for setting of salaries and for procurement matters under the "Contrat Plan" and the Government does not interfere in day-to-day management.

List of Documents Reviewed

President's Report - Power Engineering and Technical Assistance Project - May, 80

Issues and Options in the Energy Sector - July, 83

Energy Assessment Status Report - November, 84

Power Sector Strategy Note - June, 85

SAR Energy Sector Rehabilitation Project - May 20, 86

(e) SUDAN
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministry of Energy and Mining (MEM) has overall responsibility for policy formulation in the energy sector. The National Energy Administration (NEA) is the planning organ of MEM.

The National Electricity Corporation (NEC - an autonomous Government corporation) is responsible for the supply of electricity in areas served by national power grids, ie. Khartoum, Blue Nile, Damazin and Eastern areas. There are five other areas which are the responsibility of regional governments. They control about 10% of installed capacity in the country.

There is some private generation by industrial undertakings.

The legal and regulatory framework for the power sector is virtually non-existent. NEC assisted in drafting legislation for regional governments to facilitate establishment of electricity organizations.

Evolution of Sector Organization

The Central Electricity and Water Administration (CEWA) was set up in 1959 as a Government Department responsible to a Minister after Sudan became a sovereign state. It took over the main grid (Blue Nile Grid) from the Sudan Light and Power Company Limited (Managing agents for the Government) and the WAD Medani Light and Power Company (a concession). The Public Works Department continued to expand networks in rural areas.

In 1966 the Central Electricity and Water Corporation CEWC took over from CEWA under new legislation. In 1971 CEWC became responsible for all supply in the country including PWD networks.

In 1975 new legislation - the Public Electricity and Water Corporation Act - changed CEWA to the Public Electricity and Water Corporation (PEWC) and restored its autonomy. The new act gave PEWC power to appoint staff and plan and develop the system throughout the country. Ministerial approval was required for its borrowings, annual budget and changes in tariffs.

In 1982 the PEWC Act was repealed and the electricity and water supply functions separated and the current organization established.

The MEM was formed in 1977 to manage the energy sector. It has no technical experts other than seconded professionals and the Minister. The NEA was created in 1980 as the planning arm of the Ministry. In 1983, a National Energy Planning Committee was established by MEM, co-ordinated by NEA to develop a National Energy Plan. USAID has financed consultants to strengthen the NEA planning function and train its staff.

Mechanisms for Controlling Regulatory Policies

MEM regulates the activities of the institutions operating the sector, but lacks the capabilities however, for advising the Government on all aspects of sector planning and policy. IDA is financing consulting services to help strengthen energy planning.

In 1983, IDA provided consulting assistance to MEM in developing a management information system (MIS) within the Ministry. USAID has also financed consultants to strengthen NEA and MEM's planning functions and train staff.

Composition, Appointment, Powers and Duties of Board of Directors

NEC's Board comprises ten members appointed by the Government. It includes officials of government bodies, representatives of electricity consumers and one representative from NEC's employees. The Director-General of NEC is an ex-officio member of the Board.

Degree of Autonomy of Utilities

NEC has become more autonomous from government control. It obtained fringe benefits for its staff which have offset the effects of having to adhere to Government pay scales and regulations. However, in other areas autonomy is constrained. All senior and middle level management appointments have to be approved by Government. The statutory responsibility of NEC's board for policy making is regulated by legislative powers of the Minister of Energy and Mining. Nevertheless there is a clear trend towards more autonomy in decision making particularly on financial matters.

List of Documents Reviewed

Power Sector Review - May, 75
Management Assistance to the Ministry of Energy and Mining - May, 83
Issues and Options in the Energy Sector - July, 83
Energy Assessment Status Report - Nov, 85
SAR - Power III Project - March, 80
SAR - Power Rehabilitation Project - June, 85
SAR - Power IV Project - April, 87

(f) ZIMBABWE
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The main entity in the power sector is the Zimbabwe Electricity Supply Authority (ZESA), which is responsible for generation, transmission and distribution throughout the country. The Zambesi River Authority (ZRA) is responsible for the Kariba dam and reservoir operations on the Zambesi River which are jointly owned by Zambia and Zimbabwe. ZRA will construct and operate any future structures on the same river, but ZESA will also operate any associated power facilities on the Zimbabwe bank.

Evolution of Sector Organization

ZESA was formed under the 1985 Electricity Act to take over the functions of the former Electricity Supply Commission (ESC), the organization, generation and transmission facilities in Zimbabwe of the former Central African Power Corporation (CAPC), and four municipal electricity departments.

The Central African Power Corporation (CAPC) was established in 1963 under the Central African Power Act as the successor organization to the Federal Power Board, to manage the development of the Zambesi River resources and operate the Kariba hydro complex and the power interchanges between Zambia and Zimbabwe. CAPC handled the bulk supply of power to both countries up to 1977. At this time it was agreed in a Memorandum of Understanding between the two countries, that the costs and output from Kariba be shared equally. Zambia took over supply of its needs from CAPC. A Committee of Enquiry into the Future of CAPC in 1984 (funded by ESMAP) led to the downgrading of CAPC to a river authority (ZRA). It thus also ceased to be responsible for generating and transmitting power in Zimbabwe. ZRA was set up in 1987 and CAPC's power generation and transmission facilities were taken over by ZESA along with most of CAPC's staff. The legal and financial aspects of this reorganization were to be completed by June 30, 1988 under agreement reached with the Bank under the Second Power Project.

Mechanisms for Administering Regulatory Policies

ZESA reports to the Ministry of Energy, Water Resources and Development (MEWRD) through its Department of Energy.

The Higher Authority for Power to which CAPC used to be responsible has also been reconstituted as the Council of Ministers with six members as the governing body of ZRA (three each from Zambia and Zimbabwe).

ZESA is authorized under the 1985 Act to issue by laws prescribing conditions of supply and regulating the operation of local supply undertakings.

Incentives to Improve Sector Efficiency and Attract Private Sector Involvement

The Bank commented in the Second Power Project SAR (Report No. 6442-ZIM) on the need for a consistent set of national energy objectives for long-term planning. The Government proposed to prepare a plan with assistance from ESMAP for improving the coordination and management of sector institutions. In addition a cabinet committee was examining the need for improvements in the management of parastatal organizations.

ZESA set up a corporate planning unit in 1987 and is establishing an MIS system. It was also to raise its salary levels closer to private sector levels to help overcome staff shortages.

No incentives have been provided to enhance private sector participation in power supply, although considerable potential exists for cogeneration at major industrial plants.

Composition, Appointment, Power and Duties of Board of Directors

ZESA is controlled and managed by the Zimbabwe Electricity Supply Board. It comprises 6-10 members appointed by the Minister for Energy, Water Resources and Development. The Board members represent the private sector, the university, local authorities and the Government. The Board can establish committees to exercise some of its functions.

Degree of Autonomy for Utility

ZESA does not have full autonomy. Ministry of Finance, Planning and Economic Development approves operating and capital budgets through MEWRD. The Government approves conditions of borrowing and wage levels. Staff dismissals require the approval of the Ministry of Labor and tariff changes must have the final approval of the Cabinet. Procurement has to be undertaken in line with Government Tender Board regulations. Foreign exchange entitlements for operating needs are authorized by the Ministry of Trade and Commerce. ZESA accounts are audited by external auditors.

List of Documents Reviewed

SAR - Power Project - November, 1982
SAR - Power II Project - December, 1987

(g) BANGLADESH
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Bangladesh Power Development Board (BPDB) is responsible for generation, transmission and distribution of electric power except in rural areas served by the Rural Electrification Board (REB).

BPDB reports to the Ministry of Energy and Mineral Resources (MEMR). Various government agencies are responsible for non-commercial energy. The Planning Commission is responsible for the preparation of a master plan for energy. An Energy Study and Planning Cell (ESPC) has been established within the Planning Commission to formulate this plan.

Presidential Order No. 59 of 1972 2/ establishes BPDB as a corporate body which is considered to be a licensee under the Electricity Act (Act 1 of 1910). The REB is established under the Rural Electrification Board Ordinance of 1977.

Evolution of Sector Organization

Prior to the establishment of East Pakistan (Bangladesh) in 1947 responsibility for the planning, construction and operation of power facilities rested with the Government's Public Works Department under the Electricity Act of 1910 and the Electricity Rules of 1937. The East Pakistan Water and Power Development Authority (EPWAPDA) was formed in 1958 and after Bangladesh became independent in 1971, EPWAPDA was reorganized into the Bangladesh Power Development Board (BPDB), a statutory autonomous body established under Presidential Order No. 59 of 1972.

The Rural Electrification Board (REB) was created in 1977 to take over the distribution of electricity in rural areas through a system of co-operatives. By the end of 1988 thirty-two co-operatives serving about 260,000 consumers had been established.

The Government has decided to re-organize the power sector and to place the distribution functions of BPDB in the Dhaka Zone under an autonomous body. This may progressively extend to other major urban areas with rural areas remaining responsible to REB and eventually leave BPDB managing generation and transmission functions.

2/ A Summary of this document is given in Annex 4 of the SAR for the Greater Khulna Power Distribution Project, May 30, 1979

Level of Government Involvement in Sector Policies on Personnel, Operations and Investments

Under the Presidential Order establishing BPDB, Government approval is required on almost all policy, administrative, financial and personnel matters. This significantly limits the Board's decision making capability and autonomy. In practice, the Government has increasingly been involved in BPDB's day-to-day functioning especially in setting salary levels and structures (salaries are substantially below those in the private sector), bonus incentives, the selection of staff for training, budget planning and procurement. The Government's involvement and the influence of the trade unions are major impediments to BPDB's efficient operation.

Composition, Appointment, Powers and Duties of Boards of Directors

BPDB's Board is appointed by the Government. The period, terms and conditions of appointment of the chairman and the other five members are determined by the Government which can make appointments and dismissals at any time. This has led to frequent turnover of top management and although appointees have been chosen from BPDB's staff, has led to discontinuity.

Concentration of Supply in the National Power Market

At the end of 1988, 959,000 customers were supplied by BPDB and about 269,00 were connected through REB. It is estimated that about 5% of the population is receiving electricity supplies.

Degree of Autonomy

Government retains control over the development of the energy sector not only for policy formulation and strategic decisions but also for day-to-day matters such as appointment of staff, setting salary levels and approval of the budget. The limited autonomy is a major impediment to effective management of BPDB.

Proposed Bank Sector Study of Private Sector Participation in the Energy Sector

A Bank study commenced late in 1988 to identify opportunities for private sector investors in the Bangladesh energy sector and appropriate policy adjustments to facilitate such involvement. A yellow cover draft report is scheduled for June 1989. The study will contribute to formulation of policy agreements under future energy sector lending operations.

The study aims to clarify:

- (i) the regulatory framework;
- (ii) major obstacles to private sector involvement;
- (iii) realistic options for encouraging private participation;
- (iv) measures to create an investment climate conducive to private participation.

Bangladesh has significant potential for developing indigenous energy resources for domestic consumption. Among the Government's strategies for the energy sector is provision of guidance to potential private sector participants in energy development. Current private sector participation in power is limited to downstream activities at the end of the distribution process eg. consumer owned rural electric co-operatives are essentially private. Recent consideration by Government of private investor participation in a major new thermal power generating plant could signal a major development opportunity for the private sector. The Bank considers the key to creating a suitable environment for private investment appears to be through establishment and proper application of a transparent regulatory framework, a degree of deregulation and a pricing policy which would enable private investors to obtain adequate rates of return.

Clearly this work could be of considerable value to Bank staff involved with private sector participation in the power sector. A follow-up of the findings and conclusions and subsequently any participation by private investors would be worth monitoring.

List of Documents Reviewed

SAR - Greater Khulna Power Distribution Project - May 30, 79
SAR - Power Transmission and Distribution Project - December 10, 85
Yellow Cover/SAR - Power Distribution Project - September, 88
Initiating Memorandum - Private SEctor Participation in Energy - November 23, 1988 (proposed sector work)

(h) KOREA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Korean power sector is dominated by a single government-owned public utility, the Korea Electric Power Corporation (KEPCO). There are two other small companies involved with electricity generation:-

- (i) Kyongin Energy Company (KEC) - a private oil refining company with a steam plant of 325 MW capacity.
- (ii) Industrial Site and Water Development Company (ISWACO) - a government agency with 380 MW of hydro-electric capacity.

Several government agencies are involved in power sector regulation:-

- (i) Ministry of Energy and Resources (MER) - a legal authority for supervision of the power industry.
- (ii) Economic Planning Board (EPB) - responsible for defining investment priorities and review of proposed changes in rates.
- (iii) Ministry of Finance (MOF) - shares responsibility with EPB for investment planning.
- (iv) Ministry of Construction has jurisdiction over water resources and the construction of multi-purpose hydro projects through (ISWACO).
- (v) Ministry of Science and Technology (MOST) is responsible for licencing, regulation and supervision of the nuclear industry although KEPCO retains responsibility for the design, procurement, construction and operation of nuclear plants.
- (vi) Electric Power Group Co-ordination Council (EPGCC) which was established in 1984 co-ordinates development strategies in the sector, and makes recommendations on power development programs.

Evolution of Sector Organization

KEPCO was incorporated on January 1, 1982 (after the Government had acquired progressively the shares of KECO) with an authorized capital of \$2000 billion won. It is a wholly government-owned corporation which replaced the Korean Electricity Company created in 1961 by merging the then existing three electric supply companies. It is now the largest government owned corporation in Korea responsible for generation, transmission and distribution throughout the country.

KEPCO has interests in associated companies involved in the electric power sector:-

- (i) Korea Heavy Industries and Construction Company Limited (KHIC) - 35% owned by KEPCO - KHIC (formerly Hyundai International Incorporated) is a manufacturer of plant and equipment primarily for power generation, steel and petrochemical industries.
- (ii) Korea Electric Power Operating Services (KEPOS) - 100% owned - undertakes maintenance of power plants, transmission, distribution and industrial facilities.
- (iii) Korea Power Engineering Company (KOPEC) - 98% owned - specializes in engineering consulting services.
- (iv) Korea Gas Company - 17% owned.

The MER was created in 1978 to provide overall co-ordination of the energy sector. EPGCC was formed in 1984 to provide co-ordination among the power sector entities.

Concentration of Supply in the National Power Market

KEPCO supplies electricity to almost all households and industrial users in the country.

Composition, Appointment, Power and Duties of Board of Directors

KEPCO

Prior to 1984, KEPCO was managed by an internal board comprising of its president, an executive vice-president and six vice-presidents responsible for decision making and implementation.

In May 1984 an external Board of Directors was appointed, responsible for policy making. The new board consisted of KEPCO's president and eight other members. The president is appointed by the President of the Republic on the recommendation of the Minister of Energy and Resources. The Director General of the Electric Power Bureau of MER and the Secretary of the Government Enterprise Management Council of EPB are ex-officio members. The other members of the board are appointed by the Minister of Energy and Resources on the recommendation of the Chairman.

EPGCC

The Electric Power Group Co-ordination Council formed in 1984 is chaired by KEPCO's president. Other members are the chief executives of KHIC, KOPEC, KEPOS, the Korea Nuclear Fuel Company Limited (KNFC), Korea Advanced Energy Research Institute (KAERI), Korea Electric Safety Corporation (KESCO) and Korea Gas Company (KGC).

Degree of Autonomy for Utilities

Several structures including an organization study by Coopers and Lybrand in 1981 concluded that government control over KEPCO was excessive and

that it should be allowed greater autonomy over its affairs. Since then, the Government established the Public Enterprise Management Act which gives enhanced operational autonomy to KEPCO. Its board is now able to approve budgets which previously required MER approval. The Act also gives greater powers to KEPCO's president, especially to appoint other vice-presidents. The Act also establishes a Government Enterprise Management Council for laying down basic management policy, formulating common budget guidelines and evaluating management performance of KEPCO.

The Bank has proposed further steps to increasing autonomy of energy corporations in Korea through price de-control, especially the structure of prices to encourage competition between fuels.

Incentives to Improve Sector Efficiency and Attract Private Sector Participation

The policies and mechanisms adopted in the energy sector up to 1985 show little emphasis has been given to prices and the market mechanisms to achieve efficient allocation of resources.

The power sector in Korea has become almost totally dominated by government-owned corporations subjected to strong government regulation and control. This control extends from traditional utility functions to government monopolies controlling manufacture of plant, provision of consulting services, maintenance, research, safety, nuclear power and gas supply. The role of private sector investors has been almost extinguished. Most funding is obtained through the public sector rather than from private markets.

Public enterprises dominate the energy sector in Korea. The Government has done little, if anything, to provide incentives for private sector participation in the power sector. Deregulation and de-control of prices may in due time create a climate for encouragement of private capital.

Lists of Documents Reviewed

Energy Sector Issues - January 14, 85
SAR - Gajeong Power Project - November 20, 79
SAR - Second Power Project - February 12, 86

(i) INDIA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Central Electricity Authority (CEA), created as a statutory authority in 1950 as part of the Department of Power within the Ministry of Energy was established to develop a national power policy to regulate the power sector and to co-ordinate the various agencies supplying electricity. CEA's role is to provide the technical component of the Department of Power. It may help develop project proposals but it cannot build them. It is formally responsible for vetting project proposals and providing consulting support to the SEPs. Overall investment plans (five year) of the Government including those for power are approved by the Planning Commission.

Effective authority to build, own, operate power systems and sell power is given to State Electricity Boards (SEBs) appointed by State Governments. They are the main supply bodies in the country and also control and regulate supply undertakings with private licenses. The latter comprise private utilities such as Bombay Suburban Electric Supply Undertaking, Tata Electric Company (Bombay) and the Ahmedabad Electric Supply Company.

The CEA and the SEBs were established under the 1948 Electricity Supply Act. In 1976 this Act was amended to extend the authority of the CEA and provide for generating companies to be set up in the public sector ie. the National Thermal Power Corporation (NTPC) and the National Hydro Power Corporation (NHPC). Under the amendments, any new power schemes costing more than Rs 10 Million must be considered by CEA.

In mid-1978 the financial provisions of the Act were amended to provide ways of strengthening the finances of the SEBs. A uniform set of accounts was also established for the SEBs.

Regional Electricity Boards (REBs) (5) were established between 1964 and 1966 to co-ordinate planning and operation of electricity supply undertakings in the regions. Their future evolution will be critical to the effort to improve the efficiency of the power sector through the realization of economies of scale.

The Electricity sector has thus developed a complex institutional structure, the most important elements of which are the Ministry of Energy, its Department of Power and the CEA at the center and the SEBs at the State level.

Evolution of Sector Organization

Public electricity supply has existed in India since before the turn of the century; legislation governing its development was introduced in the Indian Telegraph Act of 1885.

Major institutional developments have usually been accompanied by new legislation. In 1910, the Indian Electricity Act empowered State Governments to grant licenses to electricity suppliers. Under this Act State Advisory Boards and the Central Electricity Board were set up.

After independence the Electricity Act of 1948 provided for both Central Government and the State to be able to legislate on electric power. The Act provided for the establishment of the Central Electricity Authority (CEA) and the State Electricity Boards (SEBs). Under the constitution responsibility for electricity supply is shared between the States and the Central Government. Their agreement is thus necessary for most developments. As a result there has been difficulties adopting a regional or national approach to power development.

While the CEA was formally created in 1950, its functions and responsibilities were for many years carried out by the Central Water and Power Commission (CWPC), the technical arm of the Ministry of Irrigation and Power. In 1974, Presidential notification created a new Ministry of Energy which comprised two departments, one dealing with coal and the other with power. The CWPC was split in the subsequent year and its departments dealing with power became the nucleus of a revitalized CEA reporting to the Department of Power in the Ministry of Energy. It became responsible for the formulation and co-ordination of plans for power development, optimization of investments in the power sector for the whole country, development of interconnected system operation, training of personnel and research and development.

In 1962 the Atomic Energy Act was enacted making the development of atomic power sources for electricity generation the sole preserve of Central Government. A Department of Atomic Energy was set up which delegated authority for operating commercial nuclear power generation to a statutory body, the Atomic Power Authority (APA). Responsibility for the construction and commissioning of new nuclear power installations remained with the Department of Energy.

Between May 1964 and 1966 the State and Central Governments established five Regional Electricity Boards (REBs) to help develop integrated power systems in their respective regions.

The Rural Electrification Corporation (REC) was set up in 1969 as a public sector financial institution - a company wholly owned by Government. The main objectives of the Corporation were to finance rural electrification schemes and to promote rural electric co-operatives throughout India.

The Central Government established two power generating undertakings in 1975, the National Thermal Power Corporation (NTPC) and the National Hydro Power Corporation (NHPC). They are public corporations owned by the Government and reporting to the Department of Power. They sell in bulk to the SEBs. NTPC is growing rapidly and accounts for about 10% of India's total power supplies. NHPC is struggling to establish a role for itself because the states control water rights and are reluctant to relinquish hydro sites.

At present there is no organization responsible for developing a national transmission grid. The Power Finance Corporation was established in 1986 to mobilize additional financing for power development.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

The Government still needs to adopt clearly defined strategies to deal with long term organizational and institutional issues. It recognizes the institutional and financial weakness of many of the SEBs but constitutional constraints limit the rate at which it can bring about improvement. However it is:

- (i) Increasing the role of efficient central sector institutions like NTPC.
- (ii) Requiring SEBs to earn a rate of return, after interest expense, of not less than 3%.
- (iii) Giving more favorable treatment to private sector proposals for power generation particularly where it can be demonstrated that such developments are mobilizing resources which would not be available for the public sector.
- (iv) Contemplating setting up a separate body for operation of the grid.
- (v) Subjecting availability of finance to SEBs to improvements in efficiency and finances.

The Bank is also proposing technical assistance to improve CEA's capabilities and a review of its organization and functions.

The Government is preparing a white paper covering private sector regulation in response to criticism by the private sector that no positive steps have been initiated by Government to offer a reasonable return on new investments. Accordingly the Government are looking to improve returns for private sector investments, through higher depreciation, tax concessions and easier procedures for land acquisition.

USAID has undertaken studies of private sector opportunities for investment in the power sector and for non-utility generation. It held two workshops in 1986 which were attended by representatives from the Federal and State level. The results of these activities have been reviewed separately in this report (See Annex 3).

It would be valuable for the Bank to continue to monitor USAID work on private sector participation and the Government's forthcoming white paper addressing incentives for private sector investment in the power sector.

Composition, Appointment, Power and Duties of Boards of Directors

CEA consists of a Chairman and five full-time members. The Chairman is responsible for the planning wing and each of the other members is responsible for one of the other five wings - Thermal, Hydro, Systems, Operations and Commercial.

REBs comprise the Chairman of the SEBs together with representatives of other major electricity supply undertakings in the regions and a member secretary provided by the CEA. They are "voluntary" associations of the SEBs. Their responsibilities include:

- * Reviewing progress of projects in their regions.
- * Planning integrated operation among the State systems.
- * Preparing co-ordinated maintenance schedules.
- * Determining availability of power for inter-state transfer.
- * Prescribing generation schedules.
- * Determining a suitable tariff for power interchanges.

Degree of Autonomy for Utilities

Although SEBs are supposed to be autonomous in managing their day-to-day operations; in practice they are under the control of the State Governments in matters such as capital investment, tariffs, borrowings, pay, and personnel policies.

List of Documents Reviewed

Economic Issues in the Power Sector - April, 79
SAR - Second Korba Thermal Project - June 3, 81
SAR - Karnataka Power Project - May 13, 87
SAR - Nathpa Jhakri Power Project - November 10, 88

(j) INDONESIA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The principal agency responsible for implementing government policies in the energy sector is the Ministry of Mines and Energy (MME).

An interministerial National Energy Board (BAKOREN) has been set up to ensure proper co-ordination of energy policy and to oversee sectoral development.

The electric power sector is regulated by MME through the Director General of Electric Power and New Energy (DGENE). The DGENE oversees PLN's operations and reviews its investment plans, budgets and tariffs. PLN is bound by procedures affecting all public sector enterprises especially relating to procurement and appointment of consultants.

PLN, the National Electricity Authority, a public corporation, was established under Presidential Decree No 18 of 72. It is responsible for generation, transmission and distribution of electricity and the planning, construction and operation of electricity supply facilities. There is some private generation from captive plants for owner's use and a small number of rural co-operatives in areas not connected to PLN systems.

An Electricity Act (No 15 of 85) consolidates earlier decrees and permits private and co-operatives participation in the electricity sector.

Evolution of Sector Organization

MME was established in 1978 to co-ordinate all activities in the energy sector and control the state enterprises responsible for the execution of Government policies in the energy sector. The Ministry of Public Works deals with Hydropower Surveys and the National Atomic Energy Commission is responsible for nuclear development.

PLN's history goes back to 1961 when three dutch owned electricity companies in Java were nationalized by the Government. Its effective growth started in 1972 when its charter laid down its legal status establishing it as a Government corporation replacing its previous status as a department of the Ministry of Public Works and Electric Power. Up to 1976 PLN was unable to meet demand and many industries and individuals installed their own plants.

In 1979, the Government amended PLN's charter giving MME the role of policy and planning in the electricity sector. These functions are now assumed by DGENE.

Concentration of Supply in the National Power Market

In 1986/87 21% of all households in Indonesia were electrified. (24% in Java). Captive generation accounted for 44% of capacity but industrial users were moving rapidly to use of captive generation for stand-by purposes only.

Incentives to Improve Sector Efficiency and Attract Private Sector Development

In 1979 PLN's charter was amended to provide for the establishment of private utilities and co-operatives under licence from MME. This was aimed at encouraging the pace of expansion of supply but none were licenced up to 1983.

In 1981 PLN set up a corporate planning unit. It has not developed substantially and technical assistance is planned to provide training assistance to improve and develop co-ordination between corporate and financial planning.

The Bank under its Power Sector Efficiency Project in FY89 has proposed institutionalizing the process of review of energy prices by establishment of an Interdepartmental Energy Pricing Task Force and an Energy Pricing Unit in MME to provide analytical support and technical data to the task force.

In addition to rationalization of prices, the long-term objectives for the sector require the liberalization of energy policy through encouraging financial autonomy for state enterprises and private sector investment where it might produce electricity competitively with PLN. Isolating the costs of PLN support for rural electrification is an important step towards PLN's financial autonomy because rural electrification is growing financial burden on PLN.

Also under the above-mentioned loan the Government is being asked to prepare a suitable framework and model contractual agreements to utilize some of the (in house) private generating capacity (estimated at 4500 MW in all of Indonesia) and to promote economic co-generation by industries.

Composition, Appointment, Power and Duties of Board of Directors

PLN

PLN is managed by a Board headed by a President Director with five other Directors. The President Director is appointed by the President and is accountable to the MME. Each of the Directors has a functional responsibility - planning, construction, operations, finance and administration.

Bank's Role in the Sector

In the period 1968-77 the Bank sought to create PLN as an autonomous national entity. From 1978-84 the Bank facilitated rapid expansion of PLN's facilities by financing large power plants and integrated grids.

More recently it has focussed on financing major expansions and institution building objectives especially financial autonomy better operating efficiency and improved corporate and financial planning capability.

The Bank is planning an Institutional Development Review of Indonesia's electric power sector in F89. This would look at the existing institutions, their ability to implement its development plans and lay the groundwork for reforms needed to meet future requirements of the sector. A distinguished panel of four senior officials from countries with successful approaches to power sector regulation and organization would exchange views with Government officials. Following these discussions and a one day workshop, a panel report would be prepared which would be sent to the Government. This would serve as a basis for future Government and Bank collaboration.

Issues to be examined would include:

- (i) Government's current involvement in PLN decisions.
- (ii) Adequacy of PLN's organization to handle future expansion - need for greater decentralization.
- (iii) Improvements needed to salaries and incentives.
- (iv) Need to give PLN greater autonomy especially for salaries and fuel purchasing and responsibility for its corporate decisions.
- (v) Financial dependence on Government funds to finance expansion.
- (vi) Participation of private sector as a means of reducing financial dependence on the Government.
- (vii) Rules for tariff adjustments, basis for financial requirement and overall performance.

A private sector proposal to build, operate and transfer large gas fired plant in Java is currently under discussion. The proposed Institutional Development review was still in the planning/discussion phase within the Bank, and was not expected to be undertaken till about February/March 89.

List of Document Reviewed

Issues and Options in the Energy Sector - November, 81
Energy Issues and Options in 30 Developing Countries - August, 84
Power Sector Institutional Development Review - Initiating Memorandum -
December 5, 88
SAR - Eighth Power Project - May, 79
SAR - Thirteenth Power Project - May, 83
SAR - Power Sector Efficiency Project - May, 88

(k) PHILIPPINES
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

Policy formulation and planning of the energy sector are the responsibilities of the Office of Energy Affairs (OEA). OEA reports to the Office of the President.

The other key institutions in the power sector are:

- (i) National Power Corporation (NPC) - responsible for power generation and transmission. NPC is a wholly government-owned corporation reporting to the office of the President.
- (ii) Manila Electric Company (MERALCO) - distributes power in metropolitan Manila. It is a privately owned company.
- (iii) National Electrification Administration (NEA) is responsible for rural electrification and oversight of procurement, co-ordination and financing for the 100 or so electric co-operatives.
- (iv) Semirara Coal Corporation (SCC).

Mechanism for Administering Regulatory Policies

Prior to the abolition of the MOE in 1986, the centralized structure ensured rapid development of energy resources but there was a lack of independent oversight and accountability.

NPC and OEA now both report to the Office of the President. OEA lacks the authority, however, to carry out its co-ordination and decision-making functions for the sector. As a result, sector policies and investment programs lack cohesion and reflect inadequate long-range planning.

In the Bank's recent Energy Sector Study (FY89) it was recommended that an Energy Co-ordination Council be set up in the Office of the President, headed by the Executive Secretary to the President as its chairman and the Presidents of NPC, PNOC, SCC and the Executive Director of OEA. The Government accepted this recommendation and established the Council in September 1988. Long-term plans for energy development for the country are being prepared annually in consultation with the three major public sector energy agencies. The plan is to be formally ratified by the Energy Co-ordination Council. In addition OEA coordinates the preparation of annual budgets and the assessment of policy implementation by sector entities.

Evolution of Sector Organization

There have been a number of major changes in the institutional framework since the mid-1970's. The basic organization was established by a Presidential Decree in 1977 which created the Ministry of Energy (MOE) as

the central policy, planning and regulatory body for energy. It had two major parts: a Bureau for Energy Development (BED) and a Bureau for Energy Utilization (BEU). PNOC was given responsibility for development of local coal and geothermal resources. NPC and NEA were strengthened. PNOC and NPC were attached to MOE for program and policy co-ordination, which was handled by a committee chaired by the Minister of Energy. The Minister also chaired the boards of NPC and PNOC. NEA was attached to the Ministry of Human Settlements.

With the change of government in 1986, MOE was abolished. Its functions were temporarily assumed by the office of the President. The two bureaux were placed under a Deputy Secretary in the President's Office. The OEA under Executive Order 193 of 1987 took over the bulk of the functions of the former MOE. However, the regulatory functions were transferred to an Energy Regulatory Board. This board is now regulating energy prices.

The new organization is consistent with the Government's policy of decentralized decision making and eventual privatization of the commercially viable public enterprises. Close co-ordination between existing institutions and new investors would be necessary.

NPC

NPC was established in 1936 as a non-stock public corporation with a mandate to develop hydro-power generating facilities. In 1960 NPC was converted in to a stock corporation wholly owned by the government. NPC's charter, which was issued in 1971, was subsequently amended to expand its mandate to include development, construction and operation of all power plant and transmission facilities throughout the country. The Government purchased most of Meralco's generating plant and NPC became responsible for their operation in 1975.

NEA

NEA was established in 1969 and made responsible for integrating the distribution sector (outside Manila) and extending power supplies to rural areas.

Since 1979 NEA has been empowered to authorize electric power co-operatives to construct and operate generating plants of less than 5 MW.

Prior to the creation of MOE in 1977, NPC and NEA reported to the Department of Public Works, Transport and Communication. A Power Development Council set up in 1970 reported to the same Department. It was responsible for policy making including tariff policy, sector co-ordination and approval of major projects.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

NPC has been facing a chronic shortage of local funds to finance its development program. This shortage is too large to be financed from internal sources or through government budgetary allocations. The Bank considers NPC

needs to co-operate with financial institutions, institutionalized investors and private syndicates to obtain some of its capital requirements either through sale of long-term financial investments or by independent investments in generation facilities through build, operate and transfer schemes. It has proposed that NPC policy should indicate its willingness to purchase power from geothermal steam plants if it is available at a price lower than the company's avoided cost.

In 1987, Government issued an amendment to Presidential Decree No. 40, allowing the private sector to construct and operate electric generating plants and sell their production to grids where they exist, and to end users where no grids exist. NPC has now established procedures for implementing private sector generation including BOOT projects. This would remove NPC's monopoly over generation. It has already signed a BOOT contract for 200 MW of gas turbines and is seeking to arrange development of a 300 MW coal-fired plant on the same basis.

Composition, Power and Duties of Boards of Directors

NPC

The Board of NPC comprises seven directors, which consist mostly of businessmen appointed by the President of the Republic in July 1986. Appointments are for five years.

List of Documents Reviewed

SAR - Seventh Power Project - May 27, 1977.

SAR - Bacon Manito Geothermal Power Project - May 31, 1988.

Energy Sector Study - September 15, 1988.

(1) THAILAND
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

There are three wholly-owned government corporations in the power sector namely: the Electricity Generating Authority of Thailand (EGAT), which is responsible for generation and transmission, the Metropolitan Electricity Authority (MEA) which distributes electricity to Bangkok and environs and the Provincial Electricity Authority (PEA) which distributes in the remaining areas of the country.

EGAT reports the Office of the Prime Minister. MEA and PEA report to the Minister of the Interior.

The main weakness in the regulation of the sector is the absence of a single coordinating body to harmonize investment plans and policies.

Evolution of Sector Organization

EGAT was established in 1968 through a merger of three generation and transmission authorities. EGAT operates as a bulk supplier to MEA and PEA. EGAT is a modern well-run public utility. It coordinates with the Royal Irrigation Development on hydroelectric developments.

PEA was established in 1960 and has since acquired most of the franchises that were previously privately owned. It has been responsible for rural electrification.

The Bank has made a number of loans to EGAT and PEA but has not made any loans to MEA.

Mechanisms for Administering Regulatory Policies

No one agency is responsible for the overall coordination of power policy and planning. There are several entities that are involved:

- (a) National Economic and Social Development Board (NESDB) under the Office of the Prime Minister oversees public investment planning involving the energy sector.
- (b) The National Energy Policy Committee (NEPC) which was formed in 1986 acts on behalf of the Cabinet on all matters relating to energy policy and planning. The National Energy Policy Office acts as its Secretariat and has significantly improved sector coordination.
- (c) Ministry of Industry is responsible for regulating lignite and petroleum exploration, MEA and PEA.
- (d) The National Energy Administration (NEA) is engaged in promoting energy conservation and renewable energy.

- (e) National State Enterprise Committee was appointed in 1985 under the Prime Minister to monitor pricing guidelines.
- (f) All loans are approved by the National Debt Policy Committee and by Cabinet and subsequently endorsed by the Fiscal Policy Office of the Ministry of Finance.

Coordinations of Sector Institutions

Decisions on sector policy and coordination are made by consensus by the sector institutions and government entities. Intra-sectoral coordination has been relatively effective. The load forecasting working group comprising NEPC, NESDB, NEA, EGAT, MEA and PEA prepare a common load forecast. Rate adjustment procedures are designed to provide adequate cash generation and prevent cash imbalances.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

The Government is seeking to increase participation of private investors in the energy sector because of concern over the size of the public debt. NEA is assisting development of a number of mini hydro projects. Industrial cogeneration and small scale systems burning agricultural wastes are expected to provide a small increment to generating capacity. Longer term the Government wish to involve private investors in financing utility operations. EGAT is looking at options such as BOOT projects but policies and procedures for encouraging these developments need to be prepared.

Composition, Appointment, Power and Duties

EGAT's board of directors is appointed by the Council of Ministers. The board comprises a Chairman and not more than 10 other members including the general manager. Members of the board serve in a part-time capacity.

PEA board comprises up to nine members who are also appointed by the Council of Ministers.

Degree of Autonomy for Utilities

Power sector entities enjoy considerable autonomy for day to day operations, but the Government vets planning, contracting, pricing and financing. It maintains strict control over investment planning and financing.

List of Documents Reviewed

SAR - Power Transmission Project - January, 1988
SAR - Power System Development Project - February, 1989

(m) JORDAN
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The energy sector is under the jurisdiction of the Ministry of Energy and Mineral Resources (MEMR). MEMR is responsible for formulating overall energy sector policies and co-ordination within the sector. Each entity in the power subsector prepares its own development plan. MEMR consolidates those plans.

The Ministry of Planning (MOP) reviews the sector plan as part of the overall national plan preparation process.

The following entities are responsible for electricity supply:

- (i) Jordan Electricity Authority (JEA), under the General Electricity Law (1986), is a financial and administratively autonomous government-owned utility. It is responsible for construction and operation of generation and transmission facilities, bulk sales, and for distribution mainly in rural areas.
- (ii) Jordan Electric Power Company (JEPCO) is a private company owned by the municipalities, private investors and JEA. It distributes electricity in Amman and surrounding areas. It is responsible for 55% of sales at medium and low voltage.
- (iii) Irbid District Electricity Company (IDECO) is a semi-private company owned by JEA, the municipalities of Irbid and private investors. It is responsible for 13% of sales at medium and low voltages.

The General Electricity Law (1986) defines the principles and basic regulations relating to JEA and also specifies the procedures for tariff approval, granting licences for power facilities, inspection of work and collection of statistical data.

Some large enterprises (phosphate, cement and a refinery) have their own captive power plants which also supply power to the public system in peak periods.

Evolution of Sector Organisation

MEMR was created in 1984 replacing the Ministry of Industry and Trade. It is still in its formative stages. The Government has been strengthening its capabilities. As the Ministry develops, policy formulation and co-ordination of sector institutions is expected to improve.

JEA was established by Law 21 (which subsequently became the General Electricity Law of 1986) in 1967. In addition to its functions

previously mentioned, it also prepares plans and programs for electrification, and is authorized to manufacture power system equipment.

JEPCO's operations are regulated in accordance with a 50-year concession agreement granted in 1962. It is governed by Articles of Association (1978).

IDECO operations are regulated in accordance with a 50-year concession agreement granted by the Government in 1961. Management of the company is outlined in a General Agreement (1978).

All the sector companies are well managed and efficient. Salaries at JEPCO and IDECO are higher than JEA and the public sector generally and include 13th and 14th month salaries and allowances.

Incentives to Improve Sector Efficiency

The three sector companies have adopted a standardized accounting system. A system for measuring and monitoring the technical and financial efficiency of the utilities has been implemented. Each is planning the improvement of management information systems (MIS).

Composition, Appointment, Power and Duties of Board of Directors

JEA

JEA has a board of eight directors, six of whom are appointed by the Government with Minister of Energy and Mineral Resources as the Chairman of the Board.

JEPCO

JEPCO's Board is composed of eleven members; two are nominated by government and the other nine are elected from the private sector by the General Assembly.

IDECO

IDECO also has a twelve member Board; six are nominated by the Government, three by municipalities and the other three are elected by the General Assembly.

Degree of Autonomy for Utilities

Until recently the utilities enjoyed a reasonable level of autonomy, but under a recent Civil Service Code, JEA along with all public enterprises is likely to be placed under stricter government controls which would make it de facto like a government department. Autonomy of JEPCO and IDECO has been greatly reduced because of Government constraints on tariff increases and its social objectives, especially for rural extension.

List of Documents Reviewed

SAR - Fourth Power Project - April 1981.
SAR - Energy Development Project - November 1983.
SAR - Seventh Power Project - May 1987.

(n) MOROCCO
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministry of Energy and Mines (MEM) is responsible for the overall planning and development of the energy sector. Among the public enterprises, it is responsible for is the National Electricity Authority (ONE).

The Ministry of Interior and Information (MII) is responsible for ten publicly owned Regies which distribute electricity in the main urban areas. They are also responsible for water distribution and in the case of Casablanca for sewerage. There are also eighteen small isolated systems operated by MII.

The Ministry of Equipment (ME) constructs dams for hydro-electric projects.

Several large industrial enterprises (mostly publicly owned) supply about 13% of electricity in Morocco mainly to meet their own needs but there is some interchange with ONE.

ONE is responsible for nearly all public generation, transmission and distribution to high voltage customers. It also distributes power to medium and low voltage customers.

The provisions governing the management and operation of ONE are set out in Decree No. 1-63-226 of 1963, Decrees No. 1-61-218 of 1961 for Casablanca and Decree No 2-64-394 of 1964 for the others.

Evolution of Sector Organization

ONE was established in 1963 as a Government-owned enterprise when the power industry was nationalized.

REGIES - the first REGIE was set up in Casablanca in 1961. There are now ten involved with distribution of electricity. As each Regie was formed it took over ONE distribution assets in the area to be supplied but any associated debt remained with ONE.

Co-ordination of Sector Institutions

There is inadequate co-ordination between ONE and the Regies. There is insufficient exchange of information and unclear boundaries between their service areas.

Under the Bank's FY87 Public Enterprise Rationalization loan (PERL), the Government has set up technical committees to prepare electricity tariff

reform and to facilitate co-ordination of ONE and the Regies in the preparation of their respective investment programs.

Composition, Powers and Duties of Board of Directors

ONE has an eight member Board under the chairmanship of the Prime Minister who is normally represented by the Minister of Mines and Energy. The other members are representatives of Ministries of the Interior and Information, Finance, Planning, Equipment, Management and Labor. The Board meets about three times a year.

Regies. Each Regie is managed by a Board, mostly chaired by the provincial Governor. Two-thirds of the board is composed of representatives elected from the Communal Council and the other three is made up of Government representatives appointed by MII, (usually from Ministries of Interior and Information, Finance, Equipment and Energy and Mines).

Degree of Autonomy of Utilities

One of the issues in the sector is the excessive restrictions on the managerial autonomy of ONE and the Regies. All financial activities of ONE and Regies are subject to advance approvals by the Government. Delays in approvals are costly and irritating to the enterprises.

Under the Bank's FY87 Public Enterprise Rationalization loan (PERL) specific reforms are included of the system of government oversight of ONE.

The Regies are financially and administratively autonomous enterprises under the MII, but are also subject to detailed controls exercised by the Ministry of Finance.

Bank Role in Improving Sector Efficiency

Under the Public Enterprise Rationalization Loan the Government has agreed to:

- (i) Furnish to the Bank, policies and procedures for oversight of ONE's financial operations.
- (ii) Prepare a 3-year corporate plan setting out development objectives and performance targets and actions to achieve them.

These arrangements have been included in a contract program signed by ONE and the Government.

List of Documents Reviewed

Issues and Options in the Energy Sector - March, 84
President's Report - Public Enterprise Rationalization Loan - April, 87
SAR - Power Distribution Project - January, 88

(o) PAKISTAN
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The review of investment plans and pricing proposals is under the jurisdiction of the Economic Co-ordination Committee (ECC).

The National Energy Policy Committee (NEPC) is responsible for the formulation of the Government's overall energy policy. The Energy Wing of the Ministry of Planning and Development (MPI) acts as a Secretariat to the NEPC and provides for co-ordination on energy matters with other ministries. An office of Energy Planning has recently been established within MPI to address substantive policy issues.

Approval for major public sector projects in all sectors including energy is given by the Executive Committee of the National Economic Council (ECNEC) and the Central Development Working Party (CDWP).

The key Ministry in the power sector is the Ministry of Water and Power (MWP) which has jurisdiction over WAPDA and KESC. Day-to-day management is vested in public and private sector entities.

- (i) The Water and Power Development Authority (WAPDA) is responsible for developing Pakistan's water resources and for the construction, operation and maintenance of power generation, transmission and distribution facilities throughout the country except Karachi. WAPDA is a semi-autonomous government agency chartered in 1958. It has no share capital and pays no income taxes.
- (ii) Karachi Electricity Supply Corporation (KESC) is responsible for the construction, operation and maintenance of generation facilities as well as transmission and distribution in the Karachi area. It is a private stock company with 96% of shares held by Government and government controlled companies.

There are two main pieces of legislation relating to the power sector:

- (i) Electricity Act of 1910 (as modified in 1964).
- (ii) The Water and Power Development Authorities (WAPDA) Act of 1958.

The Electricity Act enables the Government to issue licenses for the generation and distribution of electric power. The WAPDA Act confers on WAPDA the power and obligations of a licensee under the Electricity Act.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

Under the Government's Long-term Energy Strategy (LES)(FY85), it proposes to take all necessary measures to establish an institutional framework to provide security and incentives for the private sector to increase its involvement in energy development. In the power sector specific investments would be earmarked for private sector funding to provide up to 6000 MW of generating capacity by 1998. This would reduce outlays by the public sector.

In 1985 the Government announced several measures for stimulating private sector interest in power:

- (i) Treatment of private sector power plants as industrial undertakings thereby making them eligible for fiscal incentives available to industry.
- (ii) Extension of tax holiday for coal mining in new areas.
- (iii) Exemption of mining and power generation equipment from import duties.

Despite these measures the response from the private sector was not adequate. The constraints on the implementation capability of the public sector and the shortage of financial resources has induced the Government to aggressively pursue private sector involvement in assuming the lead role for bridging expected energy shortages. Accordingly the Government is encouraging build-own-operate and transfer arrangements (BOOT) involving private investors. The facilities would be transferred to Government at the end of their economic life. To reduce the burden on the national budget, only BOOT projects involving limited recourse financing would be considered.

USAID and the Overseas Development Administration (ODA) of UK financed a consultants study to identify institutional and policy constraints that could hinder private sector investments. The study recommendations lead to creation of a Private Sector Energy Development Fund to be administered by the National Development Finance Corporation (NDFC).

The Bank's Private Sector Energy Development Project (FY88) aimed to assist the Government in co-financing private sector energy projects and established an institutional framework for sustained private sector investment. The project seeks to fund up to 30% of the cost of private BOOT projects using limited recourse financing ^{3/} through the new Energy Development Fund administered by NDFC. Letters of interest have been signed by the Government for several proposals. Others are being reviewed or are in an advanced stage of preparation.

^{3/} Commercial loans and credits involving no direct sovereign guarantee

Public sector interest had been dampened by delays in approval of projects. Accordingly, the Bank sought to strengthen institutions and streamline procedures to overcome these delays. MWP is responsible for approving power proposals and co-ordination with other Ministries. Project development would require a Security Package. 4/

Under the Private Sector Energy Development Loan the Bank has sought:

- (i) Preparation of a brochure detailing the guidelines for preparation, review and evaluation of private sector proposals.
- (ii) A Private Power Cell (PPC) in the MWP for strengthening institutional capabilities for mobilizing private sector investments. Consultants would assist the PPC with the evaluation of proposals.
- (iii) WAPDA establishing its own Private Power Cell to administer power purchase agreements and co-ordinate operation of privately owned plants. Consultants are also being appointed to assist WAPDA in this area.
- (iv) Consultants study of the merits of establishing a Private Sector Energy Development Fund as an autonomous financial institution administered by NDFC.
- (v) Preparation of guidelines by consultants to NDFC for operation of the fund and for appraisal, approval and supervision of projects.
- (vi) Co-financing agreements to provide funds for private sector projects ie. in addition to the 30% component to be provided by the Government. (Co-financing commitments have been obtained from USAID, ODA, Italy and Canada)
- (vii) On lending interest rates would be reviewed each year with the Bank to ensure that they remain positive in real terms. (Loans would be for periods up to 23 years subject to a period of grace of up to 8 years).
- (viii) All projects financed by the fund would be appraised on the basis of a feasibility study submitted by the investor. The Bank would give its approval for all projects costing more than \$30 million.

Consultants would be appointed to appraise and supervise projects financed.

4/ The Security Package would consist of four elements: incentives, eligibility criteria, provisions to minimize risks and the Bank role in formulation, appraisal and supervision

Incentives under the Security Package would include:

- (i) Firm prices for energy in constant terms taking account of a reasonable real return on equity net of income tax.
- (ii) Agreed indices to reflect changes in costs.
- (iii) Reduced import duties, tax holidays, energy prices to be net of income tax.
- (iv) State Bank undertaking to make available foreign exchange to meet foreign debt service and dividend payments.
- (v) Price re-openers for civil works, unanticipated foreign exchange movements, financing costs and impact of environmental safeguards.

These were agreed with the Bank

Projects to be eligible for funding would have to meet certain criteria including:

- (i) Form part of a national least-cost development plan.
- (ii) Competitive proposals would be sought and considered if prices offered would be less than WAPDA's unit cost of generation.
- (iii) Viable economic rate of return and at least a 25% equity contribution.
- (iv) Limited recourse financing ie. no sovereign guarantee.

These were agreed by the Government.

NDFC agreed that all projects would:

- (i) Be undertaken by companies incorporated under the Pakistan Companies Ordinance with at least 51% private sector ownership.
- (ii) Preparation and implementation to be assisted by consultants.
- (iii) Engage principal contractors acceptable to the Bank.
- (iv) Obtain not less than 50% of foreign debt requirements from source other than the fund.

The rights and obligations of the Government, investors, lenders and creditors would be covered by Letters of Intent, an Implementation, Energy Purchase, Fuel Supply, Construction and Operation and Maintenance Agreements. The Energy Purchase and Fuel Supply Agreements would be guaranteed by the Government.

Provisions would also be made to minimize risks of limited recourse finance eg: in the case of force majeure or failure by the principal contractors during implementation.

IFC has signified willingness to support private sector proposals as financial/commercial advisors, equity investors or through loans on its own account or by arranging syndicated foreign commercial loans.

The Fund's resources were established at US\$520 million. As of mid 1988, US\$415 million were likely to be utilized on projects estimated to cost about US\$1.8 billion. These projects were either subject to letters of intent, under consideration by Government or under preparation.

Co-ordination of Sector Institutions

The Government's 1985 Long-Term Energy Strategy (LES) aims to achieve greater co-operation between WAPDA and KESC in investment planning and exchange of power to ensure that demand is met at least-cost.

It is also proposed to separate WAPDA's distribution activities into a National Distribution Corporation. WAPDA would concentrate on generation and transmission. KESC would then be restructured into a privately owned power generation corporation selling its output to WAPDA and a new power distribution corporation which would supply Karachi.

The Government has completed studies to re-organize WAPDA.

Composition, Appointment, Powers and Duties of Board of Directors

WAPDA's Board consists of a Chairman, and 3 members who are the managing directors responsible for power, water and finance respectively; all Government appointees.

Degree of Autonomy for Utilities

As a result of difficulties the Government was experiencing implementing its Sixth Five-Year Plan (FY84-88) a Long-Term Energy Strategy (LES) for 20 years was formulated in 1985 with Bank assistance which outlines a program of integrated structural reforms to be implemented over five year intervals corresponding to the planning cycle.

With respect to institutional development LES seeks improvements in the efficiency of the entities in the sector by decentralizing decision making and moving towards financial and administrative autonomy. KESC would restructure its finances to increase self financing to at least 40%. WAPDA would develop greater reliance on commercial markets and budget allocations would be phased out.

In the past WAPDA has enjoyed a good deal of autonomy but required Government approval for tariff changes, investment plans and annual capital budgets.

List of Documents Reviewed

Issues and Options in the Energy Sector - June, 80

SAR - Third WAPDA Power Project - November, 79

SAR - Private Sector Energy Development Project - June, 88

USAID - Private Sector Power Generation in Pakistan - June, 86

(p) POLAND
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministries of Finance and Industry are the main agencies now responsible for energy pricing, markets and regulation of power enterprises.

Operations in the power sector have until 1987 been supervised by the Department of Electric Power and Heating, under the Ministry of Mining and Energy (recently absorbed by the Ministry of Industry). All power is dispatched through a National Dispatch Center in Warsaw. Technical and financial data on the system is also consolidated by the Dispatch Center. The Ministry of Industry also supervises plants which manufacture boilers, electrical machinery and automatic control systems.

The electricity supply system is now owned and operated as a national monopoly by the Power and Lignite Board (WEWB) which was set up in 1987. Lignite is used almost exclusively for power generation. Most important investment decisions are made by the Ministry of Industry and the Planning Commission with technical input from the WEWB. The WEWB executes the investment decisions and operates the generation, transmission and distribution systems. WEWB is subject to state supervision and control in accordance with the law on state enterprises.

The main government ministries are in the early stages of creating regulatory functions to allow increased autonomy for the WEWB.

Concentration of Supply in the National Power Market

Virtually the entire population has access to electricity.

Board of Directors

WEWB is under a General Director who is appointed by the Ministry of Industry. It has a Supervisory Board of twenty-five members which includes representatives of the Ministries of Industry, Finance, Economic Co-operation, the Planning Commission, the Institute of Energy, and representatives from banking institutions and the main energy users.

Degree of Autonomy for Utilities

Each power station is treated as a profit center and the manager has some degree of autonomy over allocation of profits. Power generation prices are set by the National Dispatch Center. There is a case for increasing operating autonomy but Government control of pricing and investment should be maintained.

If operating agencies in Poland are to achieve any reasonable degree of financial autonomy, momentum towards full-cost pricing must be maintained. This will help to slow growth of energy demand and the need for

investment funds. Low energy prices remain a constraint on financial and institutional reform in the sector. The sector remains centrally planned and managerial autonomy is limited.

WEWB is responsible for preparing five year plans. Investment proposals are prepared by each enterprise. Major investments are approved by Parliament after consideration by the Planning Commission and Ministry of Finance which is responsible for arranging finance.

Incentives to Improve Sector Efficiency and Attract Private Investment

Currently all power facilities are Government owned. Poland is currently approaching a key point in moving from a system of central allocation of resources to a system of regulated markets. A shortage of investment funds is making it difficult for the State Planning Commission to withdraw from its role as the finance rationing agency.

The Polish authorities are looking at how to regulate the energy sector during its transition to regulated markets from central planning. Bank staff view current institution development practices elsewhere could be applied in Poland despite ideological differences.

Enterprise managers are rewarded more for meeting physical targets than for cutting costs. Ministries set unrealistically low load forecasts as a means of limiting investment outlays.

Re-organization of the sector could involve separation of generation and transmission from distribution. Such changes would aim to increase autonomy, accountability and efficiency. No Bank lending has yet been made for the electric power sector in Poland.

List of Documents Reviewed

Poland - Reform, Adjustment and Growth - August, 87
Poland - Energy Investment - September, 88

(q) TURKEY
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministry of Energy and Natural Resources (MENR) established in 1963 has official jurisdiction over the development of energy resources in Turkey. It is responsible for co-ordinating electricity agencies and providing advice to their planning departments through its Research, Planning and Co-ordination Department.

The main organizations involved in power generation, transmission and distribution are:

- (i) Turkish Electricity Authority (TEK) a State economic enterprise established under law 1312 in 1970. Its main responsibilities are to prepare plans and programs for the general electrification of Turkey, to construct thermal power plants, transmission and distribution, to carry out rural electrification and to operate the system.
- (ii) State Hydraulic Works (DSI) is a State agency (created by Law 6200 in 1953) responsible for developing water projects for agriculture, power and public water supply. Under TEK law DSI and TEK are required to collaborate on hydro developments. Its activities are financed from annual government budget allocations.
- (iii) Cukurova Electric Company (CEAS) is responsible for power in the provinces of ADANA, ICEL and HATAY. TEK is the largest shareholder.
- (iv) Kepez Electric Company (KEPEZ AS) has the concession for the province of ANTALYA. TEK is also the largest shareholder.

The Turkish Hard Coal Enterprise (TTK) and the Lignite Enterprise (TKI) are responsible for planning and production of coal and lignite. All State enterprises in Turkey are subject to Decree Law 233 of 1984.

The Electric Studies Institute (EIE) is a study and research institute involved in geological and hydrological work. It also acts as a quasi-consulting agency for TEK, DSI and MENR.

The State Planning Organization (SPO) reviews and sanctions investment programs in the energy sector prior to their approval by the Government.

Private sector companies may apply to generate, transmit and distribute power under Law 2096 of 84. Build own operate and transfer (BOOT) projects are being considered under this legislation.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

Under the Banks FY87 Energy Sector Adjustment Loan preparation, a panel of experts was set up primarily to review the institutional framework of the electric power sector. This led to a brief policy paper prepared by the Bank providing recommendations for improving the institutional framework.

The recommendations included:

- (i) Establishing a regulatory body.
- (ii) Revising existing regulations for private operators.
- (iii) TEK to be subject to external financial audit.
- (iv) Strengthening TEK's Board of Directors.
- (v) Accounting changes and a financial plan for TEK.

These recommendations were aimed at ensuring private sector participation in BOOT projects based on regulatory reform. A regulatory commission was seen as necessary to provide a sense of fairness and to evaluate private sector bids. External audit and improvement to its Board were seen as important to make TEK's operations publicly visible and to achieve a higher degree of acceptability in both the public and private sector.

The Government has not agreed to set up a regulator or change its Board or to private sector involvement. However, it has agreed to an external audit and some improvement to its Board membership.

The State Planning Organization has been negotiating contracts for construction of 1000MW plants with private investors on a BOOT basis. Imported coal would be used in a currency free zone. TEK was to buy 70% of capacity output on a take or pay basis at 60-65% of its existing tariff allowing the investors a 20% internal rate of return over ten years.

Private hydro plants and autogeneration were also under consideration. TEK sees itself remaining in control of generation and transmission and taking an equity in small private projects.

Organizational changes which have been undertaken recently are:

- (i) One of the existing private concessionaires has taken TEK's transmission network and generation capacity in a particular region and becoming a fully-fledged regional utility.
- (ii) Setting up separate companies within TEK for Regional Distribution and a generation and transmission company which could be decentralized or leased to private parties through management contracts.

The need for a regulatory agency was seen by the panel of experts to:

- (i) Ensure issues of cost verification and monopoly power for private power plants are addressed.

- (ii) Role of TEK would need to change to achieve greater acceptability in the public and private sectors.
- (iii) Problems between TEK and the private systems over buyer-seller relationships, tariff regulation, consistency of investment planning.

Composition, Appointment, Powers and Duties of Boards of Directors

TEK

The composition of TEK's Board is addressed in Decree Law 233 of 84. Five Directors are appointed by joint decree; two upon nomination by the Minister, one nominated through the Minister associated with the Treasury and Foreign Trade, and two nominated by the concerned Minister from the general management of TEK. Directors terms are for three years.

Degree of Autonomy for Utilities

TEK can borrow in its own name with Government guarantee. It is run on commercial lines and is subject to taxation like private companies. TEK has been subjected to close scrutiny and its autonomy has been severely limited by lack of freedom in setting personnel policies and structuring salary scales. Under Government reforms to State Economic Enterprises in 1980, they were to be allowed to set their own prices and their deficits were no longer to be met from the budget, except in the case of electricity tariffs. However, recruitment and retention of staff have been generic problems in TEK, due to low salaries.

During preparation for the energy sector policy loan in 1986 a separate policy note was prepared outlining actions for increasing the financing accountability and autonomy of TEK; These included:

- (i) Improvements to present financial planning and management procedures.
- (ii) Implementation of cost accounting systems.
- (iii) Actions to ensure TEK financial obligations are reflected in its accounts, especially hydro investments.

One possibility was for TEK to raise its own loans from local sources through bond issues, the Treasury, State Investment Bank or the Public Participation Fund.

List of Documents Reviewed

Issues and Options in the Energy Sector - March, 83
Energy Issues and Options in 30 Developing Countries - August, 84
Electricity Planning and Investment - Volume I, June, 85
SAR - Karakaya Hydropower Project - April, 80
Energy Sector Policy Loan - The Institutional Framework - August, 86
Report No. 1 Public Sector Efficiency and Private Sector Participation in the
Electric Power Sector
Report No. 2 Increasing the Financial Accountability and Autonomy of TEK

(r) BRAZIL
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Constitutional and Legislative Changes

In 1988, Brazil reversed a trend towards centralization by adopting a new Constitution which enhanced the autonomy of the states and reduced the role of the Federal Government. By not reflecting the enhanced powers of the states, existing sector legislation is not in accord with the current political realities in Brazil and is, therefore, subject to change. The sector framework described below reflects the former paramount role of the Federal Government. Future institutional roles and legislative changes are being addressed through the REVISE study, which is also described below.

Existing Framework

The Ministry of Mines and Energy (MME) exercises jurisdiction over the power sector through its National Department of Water and Electric Energy (DNAEE) and Centrais Eletricas Brasileiras. SA (ELETROBRAS). The National Energy Commission (CNE) is responsible for energy policy together with MME.

DNAEE functions as a regulatory agency. It was created by Law No. 4904/65 and Decree No. 73620 of 1974. ELETROBRAS functions as a holding company and sector development bank. It was created by Law No 3890-A of 1961. CNE is strictly a planning unit.

Four ELETROBRAS subsidiaries are primarily responsible for regional generation and high voltage transmission systems:

- (i) FURNAS - (South East)
- (ii) CHESF - (North East)
- (iii) ELETRONORTE - (North)
- (iv) ELETROSUL - (South)

They act as bulk suppliers to the state and municipal utility companies which are generally responsible for sub-transmission and electricity distribution.

In addition ELETROBRAS owns distribution subsidiaries:

ESCELSA - (South East)
LIGHT - (Rio de Janeiro)

and the Brazilian Government's 50% of interest in Itaipu Hydroelectric plant. It also has minority interests in the state-owned utilities. The major state-owned utilities are:

- (i) CESP (Sao Paulo)
- (ii) ELETROPAULO (Sao Paulo)
- (iii) CEMIG (Minas Gerais)
- (iv) COPEL (Paranas)
- (v) CEEE (Rio Grande do Sul)
- (vi) CPFL (Sao Paulo)

- (vii) CELESCA (Santa Catarina)
- (viii) COELBA (Bahia)
- (ix) CELPE (Penambuco)
- (x) COELCE (Ceara)

Thus most of the sector is now in the hands of Federal and State owned utilities. It still comprises some 600 concessions of which 25 are state owned companies and the rest small municipal and private companies.

The basic legislation of the sector dates back to 1937 (a Water Code) and the 1950's (Decree 41 of 19 of 1957).

The "Water Code" regulates the use and rights on water and also the basis for the electrical service. It was written at a time when the use of water for production of electricity was the main concern. In the early 1970s a revision of the "water Code" was prepared by an interministerial effort co-ordinated by MME but difficulties arose which prevented its enactment.

Decree 41,019 was prepared when the institutional structure of the sector was very different from today. It has been amended from time to time to resolve conflicts and accommodate needs which arose as the sector evolved. It is considered to be a sound and comprehensive document but needs revision to consolidate amendments and to adapt it to present conditions.

Through a study (REVISE) under the Power Sector Loan (2720-BR; 1986), the Government is reviewing sector legislation with a view toward eliminating overlapping functions and reflecting current political realities.

Evolution of Sector Organization

The institutional development of the Brazilian power sector over the last 50 years has been characterized by progressive nationalization and growing centralization resulting in the consolidation of a few large and hundreds of small utilities into a relatively compact structure of state and federally owned utilities.

Since 1960 there has been a trend towards increasing sector efficiency and co-ordination enhanced by the establishment of ELETROBRAS in 1962 and by the strengthening of the National Department of Water and Electric Energy (DNAEE) within the Ministry of Mines and Energy (MME) as the regulatory agency.

Decree 68204 of 1967 established the current sector organization under which DNAEE performs regulatory functions.

Since 1967 Government policy has been to consolidate public electricity service in the individual states into single state owned utilities primarily responsible for distribution activities. As a result many municipal and privately owned utilities have been gradually transferred to the state owned utilities of Eletrobras.

Nuclear activities began in 1956 with the creation of the National Commission on Nuclear Energy (CNEN) for policy making and regulation and in 1974 the role of the three main agencies in nuclear affairs was clarified

under law 6189 which establish NUCLEBRAS for building nuclear plants. In August 1988, responsibility for construction of nuclear plants was transferred to FURNAS.

Mechanisms for Administering Regulatory Policies

The DNAEE regulates the sector, grants licences for generating plant, assigns concessions, approves expansion plans and borrowings and sets tariffs under the principle of service at cost plus an adequate return on capital. The approval of other Federal authorities is also required eg. that of the President for major licences and concessions, of the Secretariat of State Enterprises for investment levels, and of the Ministry of Finance for tariff increases.

ELETROBRAS analyses expansion plans for major generating and transmission facilities and co-ordinates and supervises the public power system.

Until recently the Government has made most of the important decisions affecting the power sector and these decisions have reflected broader macroeconomic concerns. This has meant that tariff adjustments have been inadequate to meet real cost increases. Subsidized tariffs have been approved to promote exports and to stimulate the substitution of electricity for imported oil products. In addition the borrowing capacity of the sector has been used beyond prudent limits taking advantage of the sector's access to foreign finance. However, the new constitution (1988) foresees a higher degree of autonomy for the state-owned utilities.

The sheer weight of a few large and powerful institutions, for which the Government has inadequate countervailing regulating power and guidance, in conjunction with a significant privately owned component has tended to characterize the sector's institutional structure and aggravate problems of sector coordination. ELETROBRAS' planning responsibility has been overshadowed since 1981 by the Special Secretariat for State Enterprises which has taken over decisions on the public sector investment programme. As a sector regulatory agency, DNAEE has been subordinated by the Secretariat of Supplies and Prices.

Progress has been made in co-ordination in the planning and operational areas of generation and transmission with the creation of co-ordination groups. Other co-ordination groups also exist such as:

- (i) CODI for distribution
- (ii) COGE for administrative procedures
- (iii) GRIDIS for safety and work medicine
- (iv) PROCON for conservation of electric energy

Concentration of Supply in the National Power Market

The industrial sector uses 55% of total production in the country. There is uneven electricity consumption because of high demand and urban concentration in Sao Paulo and Rio de Janeiro. Access to electricity in rural areas is low (22%).

Involvement of Regulatory Bodies in Environmental Affairs

Since 1986, ELETROBRAS has prepared the Environmental Master Plan (EMP) for the Power Sector in connection with Loan 2720-BR. The EMP consists of sections on: (i) national environmental policy, legislation, regulations and guidelines; (ii) specific guidelines to improve environmental planning and operation on the part of the power sector, including criteria to assess environmental costs and benefits related to the construction of power projects and the operation of the system; (iii) preparation of environmental and social action plans on a project-by-project basis and (iv) measures to strengthen the institutional capabilities of the sector for implementing the EMP. Together with the Manual for studies of "Environmental Effects of Electric Systems" and the general Federal guidelines for the preparation of RIMAs, the EMP provides guidelines for the treatment of environmental, resettlement, and tribal matters and specific project-by-project social and environmental action programs. The EMP is a dynamic performance evaluation of the power sector and is periodically updated and reissued. Results of the implementation of the EMP can be measured primarily in terms of: (i) the environmental, resettlement and Indian assistance programs, which have been carried out since 1986 by ELETROBRAS and the Electric Power Sector Companies in compliance with its guidelines, (ii) improvements in the investment selection process, and (iii) institution building.

Level of Government Involvement in Sector Policies on Personnel, Operations and Investments

The Federal Government takes most of the important decisions affecting the sector approving investment programs, setting tariffs, authorizing external borrowing and setting constraints on wages policies.

This concentration of decision making authority within the Federal Government has led to contradictions with the general policy of the current Government to decentralize decision making.

Composition, Appointment, Powers, Duties of Board of Directors

ELETROBRAS has an administrative Board comprising President (appointed by the President of the Republic), five Directors (elected at shareholders meetings for three year terms); six counsellors (elected on the same basis as Directors).

FURNAS (typical of the generation-transmission companies). The Government appoints a Board composed of a President and five Executive Directors who head the key departments. The shareholders also elect a three member Fiscal Council to review financial operations.

Bank Role in Institutional and Regulatory Reform

Under the Electric Power Sector Loan the Government agreed to carry out by June 30, 1987 a review of the institutional structure and policies of the sector (REVISE). It was to include examination of the following:

- (i) Overlapping functions and undue concentration of responsibility (ie. identify a more decentralized decision making process).

- (ii) Need for a better definition of the roles and degrees of autonomy of the various sector entities and government agencies - both Federal and state.
- (iii) Pricing issues - equalizing rate of remuneration for all utilities, uniform national tariff - rate of return shortfalls.
- (iv) Increased participation by private sector.

Progress on the study was delayed and the terms of reference and timing were revised in late 1987. The draft study will be reviewed by the new Administration before finalization. The study is being co-ordinated by an Institutional Review Commission. This Commission is executing the study in co-ordination with the National Energy Commission which is carrying out an Integrated Energy Strategy Study which also addresses institutional issues.

The Bank has been focussing on the severe financial difficulties of the sector through annually updated Power Sector Rehabilitation Plans (1985-89).

List of Documents Reviewed

SAR - Electrosul Transmission Project - November 5, 76
Energy Issues and Prospects - December 10, 82
President's Report - Chesf-Furnas Power Transmission Project - May 16, 85
SAR - Electric Power Sector Loan - May 27, 86

(s) CHILE
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Legislative Framework

The main legal instrument is the General Law of Electricity Services (Decree Law No. 1 of 1982) which sets up the basic principles governing the sector particularly concessions and rights, operation and supply, consumers' contributions to capital stock and tariffs. The entity that monitors the compliance with the General Law of Electric Service is the National Energy Commission (CNE) established as a public entity by law (Decree Law No 2224) in 1978. Its functions are to design and co-ordinate plans, policies and guidelines for the performance and development of the energy sector in Chile, to monitor the adequate implementation of such plans and, in general to advise the Government on energy matters. Responsibility for the structure and level of tariffs rests with the Ministry of Economy, Development and Reconstruction advised by CNE.

Chile now has four major state owned generation companies all subsidiaries of the Government owned holding company, CORFO:

- (i) ENDESA (now mostly privately-owned) - with 80% of installed capacity, and most of the transmission system
- (ii) COLBUN S.A. (98% government owned) - operates the Colbun-Machicura Hydro Project.
- (iii) PEHUENCHE S.A. (being fully privatized) - for implementation of the Pehuenche Project.

Distribution of electricity is through private distribution companies owned largely by pension funds, municipalities and the employees. The Economic Dispatch Center for the Central Interconnected System (CDEC-SIC) which was created in May 1985, is formed of representatives of the main generation companies, to co-ordinate the system. It is operated and managed by ENDESA.

The National Planning Office (ODEPLAN) co-ordinates the actions of state entities and enterprises with the National Development Program.

Further regulation is needed and is being studied by CORFO with consultation with the Bank to provide:

- (i) Guidelines and legislation on the environmental and resettlement aspects of power projects.
- (ii) Systems and procedures for the design of small and medium size hydroelectric projects.
- (iii) Reduction of illicit use of electricity.

The Government has also agreed to CNE updating the legislation pertaining to the concession and operation of electricity services.

Evolution of Sector Organization

CORFO was created in 1939 (under Law 6334) to promote accelerated industrial development in all economic sectors of the country, as the Government holding company and development bank. It is an autonomous agency. Because of its success, the CORFO model has been followed by several Latin American countries. Under the present Government's policy of privatization it has started an ambitious divestiture program. The privatization effort is called "NORMALIZATION."

Endesa was established as a subsidiary of CORFO in 1944 by Ministry of Finance Decree No. 97 with the purpose of preparing a National Power Plan and implementing it where other companies would not. It has been quite successful and has been by far the largest public utility in the country. Until 1975 Endesa had its own construction forces. However, under the Government's current policies of deconcentration and decentralization, ENDESA's growth and share in the sector will be substantially reduced.

Pehuenche S.A. was created in April 1986 to construct and operate the Pehuenche Hydro Project. It is 70% owned by CORFO, 30% by ENDESA and 10% by Chilectra Generacion.

The National Energy Commission was established in 1978 as the regulatory agency for all energy related activities.

Composition, Appointment, Powers and Duties of Board of Directors

CNE reports to the President of Chile. The President of CNE with rank of Minister represents the President and chairs the Executive Board. The Board includes Ministers of Defence, Economy, Finance, Mines, Planning and the Chief of Presidential Staff.

Pehuenche S.A.'s Board of Directors consists of seven members elected by the shareholders for three year renewable terms. The Board members are individuals with experience in running public enterprises.

Endesa also has a Board of Directors of seven elected by shareholders. They are responsible for formulating the general policies of the company regarding organization, operations, financing and project development.

Degree of Autonomy for Utilities

The degree of autonomy and accountability to Government afforded to power sector entities can be gauged from its involvement in Endesa. The Government is not involved in the daily management of Endesa and this high degree of autonomy has been maintained throughout its existence. Endesa is subject to the country's Corporation Law, the commercial and labor codes governing Chile's corporations. It requires the approval of the Ministry of Finance to undertake any major financing. The Government has in the past given financial support through equity and other contributions and loans. The policy of the present Government is to encourage the company's financial autonomy and since the early 80's its financial situation has constantly improved.

Concentration of Supply in the National Power Market

In 1985, 86% of the population had electricity service (96% urban, 35% rural). 93% of the population consume 84% of electricity in the central region of the country supplied through the Central Interconnected System.

Involvement of Regulatory Bodies in Environmental Affairs

The Government is aware of the need for environmental management in the energy sector. Under the Banks Public Sector Management Project, the Government is preparing a manual for measuring the environmental impact of electric power projects. CNE has taken the initiative by undertaking corrective and preventative action. The Bank has recommended that Government institutions involved in environmental matters such as CNE, ODEPLAN and CORFO should enhance their role. They should also aim at closer co-operation with non-government organizations.

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

Within the framework of its general energy policy, the Government has established the following for the power sector (which the Bank supports)

- (i) Promotion of efficient use of electricity through realistic pricing policies, energy conservation and improvement in sector operations.
- (ii) Deconcentration and decentralization of ENDESA with the creation in some cases of separate companies for new projects.
- (iii) Divestment of Government ownership of electric utilities in an orderly manner, starting with regional distribution companies, small generating companies and then larger distribution companies and completing the process with major generating companies. Except for COLBUN S.A. this process is largely complete.

These policies were largely developed by the Government prior to the Bank's recent involvement in the sector.

The Government regulates energy prices principally for the distribution companies and is establishing coherent and comprehensive information systems to ensure market transparency and efficient use of energy resources. Larger consumers have some freedom to negotiate and purchase power on a competitive basis.

Pricing of electricity to major consumers is set through bargaining between consumers and suppliers who must compete for the market. This policy promotes competition among the generation companies, provides incentives to major consumers to seek the most economic generation source and to make optimal use of the transmission system. Distribution tariffs are regulated by the Ministry of Economy on the basis of marginal cost subject to recommendations by CNE. Distribution companies as a group can earn an economic rate of return of 6% to 14% based on new replacement values. Consumers are allowed to choose from the alternative tariffs within their corresponding voltage range. This tariff scheme is established under Decree

Law No 1 of 1982. The Bank has supported this pricing system considering it a surrogate for market forces. The Bank has agreed with the Government under the Pehuenche project that changes to this legislation adversely affecting this pricing system will constitute an event of suspension.

Endesa has implemented the Government's policy of privatization by selling off several subsidiaries. Private and institutional investors include several construction companies, pension funds, insurance companies and the employees of the power companies.

List of Documents Reviewed

First Project Brief - Pehuenche Hydroelectric Plant - September 18, 86

Energy Sector Review - August 1, 88

SAR - Pehuenche Hydroelectric Project and Alto Jahuel - Polpaico Transmission Project - May 15, 87

(t) COLOMBIA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Ministry of Mines and Energy (MME) through its Electric Energy Division plays an important policy and regulatory role in the power sector. It issues regulations for provision of electricity and technical standards. It shares responsibility for defining investment priorities with the National Social and Economic Policy Council (CONPES), the National Planning Department (DNP) and Interconexion Electrica, S.A. (ISA).

The tariff board (JNT) in the National Planning Department is empowered under Decree 201 of 1974 and Decree 149 of 1976 to set electricity tariffs.

FEN (a financial intermediary) was set up by the Government in 1982 to help finance the power sector investment programs and oversee the sector's finances and financing strategies. It is owned 95% by the National Government and 5% by the utilities.

Six main utilities dominate the power sector:

- (i) EEEB (Bogota) is an autonomous company owned by the municipality of Bogota.
- (ii) EPM ^{5/} (Medellin) is an autonomous company fully owned by the municipality of Medellin
- (iii) CVC (Cali) is an autonomous multipurpose state corporation under the Department of National Planning selling bulk power.
- (iv) ICEL - fully government-owned holding company for thirteen smaller utilities reporting to MME.
- (v) CORELCA; - fully government-owned holding company for nine small utilities
- (vi) ISA - a generation and transmission utility whose main shareholders are EEEB, EPM, CVC, ICEL and CORELCA.

ISA is a key sector institution with broad responsibility for sector planning, interconnection of regional systems and operation of the integrated system. ISA is responsible for preparing the least-cost program for generation and transmission for the country taking account of environmental and resettlement costs. It is a corporation-owned by the regional municipal utilities. ISA and the regional utilities which are its

^{5/} Operates power, water, sewerage and telephone services

shareholders generate practically all public supply. ISA operates power plants and the interconnection grid selling in bulk to its shareholder companies.

Evolution of Sector Organization

Through the 1950's a large number of power companies were set up by local governmental authorities and lacking interconnections with each other were operated independently. With encouragement of the Bank, the Government persuaded the regional power companies to pool their resources to plan and develop the countries large hydroelectric potential. To accomplish this, ISA was created in 1967 as an independent national generation and interconnection company-owned by the largest municipal power utilities and the Government-owned power companies. Interconnection of the main systems was achieved by ISA in 1971. It has successfully undertaken large hydroelectric development. Unfortunately ISA's shareholders are inclined to allow their regional interests to take precedence over national goals.

ICEL and CORELCA were established in 1968 to improve planning and operations of the smaller systems.

In 1982, the National Electricity Fund (FEN) was set up with strong support of the Bank. The Government's involvement in ISA was increased in 1985 when it was assigned two seats on ISA's board.

Over the period, 1970-88 the only changes in the sector structure were:

- (i) The creation of the Ministry of Mines and Energy which took over from the Ministry of Public Works responsibility for ICEL and CORELCA.
- (ii) The Department of National Planning replaced the Department of Agriculture's sponsorship of CVC.
- (iii) FEN was established in 1982 and CORELCA was made a shareholder of ISA.

These changes strengthened the regulatory functions of the Government.

Mechanisms for Administering Regulatory Policies

JNT is responsible for the setting and regulation of tariffs. Since 1986 the Government has, by policy directions and law, secured the utilities compliance with JNT's tariff resolutions.

FEN has not yet fully attained its objectives of advisor to Government on sector financial issues and funding of large projects. It has, however, recently set up a Projects Evaluation Division.

A monitoring committee was set up in 1988 with assistance of the Bank. It submits reports half-yearly on progress on action plans and performance of the sector companies. It comprises the Minister of Mines and

Energy or his delegate, the President of FEN, General Manager of ISA, the Chief of the DNP, the Minister of Finance and Credit and permanent advisors. It takes decisions on integrated planning of the sector, tariff policies and strengthening of the companies.

Involvement of Regulatory Bodies in Environmental Affairs

By law all major development projects require an environmental assessment to be submitted for approval to INDERENA a specialized institute of the Ministry of Agriculture.

ISA's environmental unit was upgraded in the second half of 1988, and additional staff have been appointed. A plan of action has been established for resolving environmental and resettlement issues affecting the power sector. The Bank has been monitoring these developments.

Private Sector Investment

No initiatives have been taken by Government to encourage private sector financing of power facilities. There is significant private generation capacity because of the power shortages that occurred in the late 70's and early 80's.

Composition, Appointment, Power and Duties of Board of Directors

Boards of Directors tend to change whenever there is a change of mayor in the municipalities, which can now be every two years, except for ISA where the Board has been unchanged for several years.

ISA

ISA is administered by its shareholders assembly, a five member Board and a General Manager. The assembly acts on all major issues and decision making is slow due to conflicts between the various shareholders. Decisions are based on consensus.

EEEB

EEEB is administered and directed by a seven member Board headed by the Mayor of Bogota. Two members are elected by the Municipal Council, three are chosen by the Council from lists submitted by banks, commerce and industry in Bogota, and one is chosen by the President of Columbia.

EPM

EMP has a similar Board to EEEB.

Degree of Autonomy for Utilities

The existing regulatory framework is improving. Many sector entities have experienced serious managerial and financial difficulties. Coordination between municipal and national bodies in the sector has been poor due to regional rivalries.

Bank Role in Sector Regulation

The Bank played an important role in ISA's establishment in 1967 because of its concern with the fragmentation of decision making among increasingly autonomous utilities. Until 1985, however, ISA had no Government representation on its Board and so was not effective in ensuring sector policies were followed. The Government allowed the regional utilities to proceed with construction of their own generation facilities in 1979 and this further reduced ISA's role. ISA's role was to develop plants that extended beyond the interests of any one region.

Until recently the Bank has sought to promote development of sector wide strategies for the power sector by addressing broad sectoral issues in the context of lending operations with individual utilities. In particular, it has sought to improve resource mobilization, achieve greater efficiency among the utilities and to improve institutional arrangements.

The Bank addressed sector problems under its FY88 Power Sector Adjustment Loan where in the Government has submitted a draft law to establish an Energy Board. 6/ The Board would comprise the Minister of Energy, the Chief of the Planning Department and representatives of the energy agencies. The Energy Board would set policies and regulate the use of energy resources. It would approve investment plans of all energy sector entities. ISA's role would also to be strengthened by giving it the authority to own, construct and operate all future major generation and transmission projects. The establishment of the Monitoring Committee and the proposed Energy Board would enhance the Government's role in the sector and of course improve the coordination of the utilities. In addition, management improvement plans for EEEB, ICEL and CORELCA have been received and reviewed by the Bank.

The Bank's Operations Evaluation Department is looking at the Bank's experience in lending to the Colombian power sector from 1971-87 because of the sector's poor performance.

List of Documents Reviewed

SAR - San Carlos II Hydro Power Project
SAR - Guadalupe IV Hydro Power Project - May 16, 80
SAR - Village Electrification Project - May 6, 81
SAR - Rio Grande Multipurpose Project - June 1, 84
SAR - Botoga Distribution II Project - May 28, 85
Presidents Report - Power Sector Adjustment Loan - November 10, 87
UNDP/World Bank - Basis for Formulation of a Colombian Energy Policy (ESMAP) - December, 1986

6/ Legislation to establish the Energy Board has not yet been enacted.

(u) COSTA RICA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

Public electricity service in Costa Rica is regulated by Law 258 on Electricity Service of 1941. This law created the National Electricity Services (SNE) which has responsibility for regulating electricity, water supply, telecommunication and sewerage and determining rates. SNE is an autonomous agency governed by a Board of Directors. It also grants concessions for power plants.

The electric power sector comprises the following Government owned companies:

- (i) The Costa Rican Electricity Institute or Instituto Costarricense de Electricidad (ICE) established in 1949 as an autonomous Government institution responsible for planning, generation, and transmission of electricity as well as its own distribution and that of Compania Nacional de Fuerza y Luz (CNFL) and the co-operatives. It is also responsible for telecommunications.
- (ii) CNFL is a private company subsidiary of ICE (99% owned by ICE). It distributes electricity in the San Jose metropolitan area and vicinities (about 50% of total consumers).
- (iii) Two municipal distribution companies - Empresa de Servicios Publicos de Heredia (ESPH) and the Administrative Board of the Cartago Electricity Service (JACSEC).
- (iv) Four rural electric co-operatives: Coopeguanacaste, Coopelesca, Coopeasantos and Coopealfaro.

The Ministry of Natural Resources, Energy and Mining is the governing agency (MINEREM). The Ministry of National Planning and Economic Policy (MIDEPLAN) prepares the National Development Plan and the public sector investment budget. Agencies in the sector co-ordinate planning and energy policy through the Energy Sector Directorate of MINEREM. The National Budget Authority gives final approval to power sector investment plans.

The National Council of the Energy Sector (CNSE) is responsible for defining priorities for energy development and ensuring co-ordination between implementing agencies.

Lastly, there is the Secretariat for Energy Sector Planning (SESP) established to develop an energy data base, prepare specialized studies of the energy sector and develop a national energy planning capacity.

Mechanisms for Administering Regulatory Policy

SNE's legal framework empowers it to intervene in aspects beyond the regulation of the sector. However, its activities have been confined to

regulation of tariffs and granting of concessions to the public utilities and checking of all electricity meters.

Evolution of Sector Organization

ICE was created in 1949 as a government-owned institution responsible for power generation, transmission and overall power system planning. In 1971 there were 57 independent electric utilities serving isolated centers throughout the country. ICE has since absorbed most of these utilities by purchase of shares.

The Office of National Planning and Economic Policy has historically been in charge of co-ordinating action in the energy sector. However, in recognition of the growing importance of energy issues the Government made (MINEREM) responsible for co-ordination and overall policy direction in the energy sector. Two additional groups were created since 1980: the National Council of the Energy Sector (CNSE) chaired by the Minister, with other Ministers and Presidents of the main institutions in the sector and the Secretariat for Energy Planning (SESP).

Incentives to Improve Sector Efficiency and Attract Private Sector Investment

ICE is empowered to authorize private and/or municipal operators. Its policy has been to consolidate the power sector by absorbing most of the independent electric utilities. It does not plan to grant future operations to independent utilities.

In April 1988 USAID sponsored a study of non-utility power generation in Costa Rica. A report was prepared by consultants RCG/Hagler, Bailly Inc of Washington D.C. The consultants concluded options appropriate for private sector development included industrial co-generation, mini-hydro plants and energy from biomass. Currently no private sector plants are selling to the grid. Small private hydro plants are being planned and sugar mills are interested in obtaining finance for an additional 30 MW of power from plants using bagasse from sugar cane as fuel.

Subsequently in July 1988 USAID also sponsored a technical and economic analysis of the costs of producing electricity from sugar cane residues. It concluded that investment opportunities were encouraging. However, the attractiveness of such investments would depend on decisions by public authorities on prices that they were willing to pay for any surplus power, lending rates and import duties. However power would only be available during the dry season when cane is crushed unless off-season fuel supplies can be provided.

Monitoring of the impact and results of USAID initiatives to encourage private sector generation would be useful to the Bank.

MINEREM has assigned priority to identifying the prerequisites for formulating appropriate private power policies for the country. Only small hydro and generation by sugar mills is considered attractive. Private sector investment could be encouraged if the proper conditions existed. The main impediments identified by the consultants were:

- (i) Lack of clear Government policies for private sector supply.
- (ii) Scarcity of private sector financing.
- (iii) Inadequate technical and economic information.

USAID recommended that Government clarify its policies towards private sector licensing of projects especially the legal framework, contractual terms, licensing procedures and purchase price. They also proposed tax incentives and establishing a high level Private Power Committee to plan and co-ordinate actions to promote private power developments.

IDB is preparing a loan to the Government to finance private industries. The Bank (i.e. IBRD) supports establishment of incentives for private generation and for small hydro plants.

Composition, Appointment, Powers and Duties of Board of Directors

National Electricity Service (SNE)

The Board of Directors of SNE is made of a director, two deputy directors and their alternates (ie 5 members). SNE is autonomous but normally consults Government before increasing tariffs.

Costa Rican Electricity Institute (ICE)

ICE is administered by a Directing Council consisting of seven members appointed by the Council of Government. The Chairman of the Directing Council is also the Executive President. He serves a four-year term. The other members serve eight-year terms with half of the members being eligible for re-appointment every four years. The Council has four standing commissions: Finance, Technical, Legal and Labor Affairs.

ICE designates directors from its council and its senior staff as directors of CNFL, ESPH and JASEC. Through board membership and/or part ownership, it participates in the utilities and its influence has helped improve standardization of the sector's procedures, operation, design and equipment.

The members of electric cooperatives nominate administrative councils. ICE is represented on these Councils by one member.

Degree of Autonomy for Utilities

ICE is answerable for its operations to the Executive Branch and needs prior authorization to set rates and issue bonds. It is subject to audit by the National Budgetary Authority created by Law 6821 of 82. The Authority comprises the Minister of the Treasury as Chairman, the Minister of National Planning and Economic Policy and the President of the Central Bank. The Authority authorizes budgets and borrowings; issues mandatory guidelines on remuneration, levels of expenditure, hiring of personnel and investment levels; it reviews income and expenditure monthly.

List of Documents Reviewed

Energy Assessment Mission - Issues Paper - April 1, 83.

Power Sector Memorandum - July 8, 83.

Issues and Options in the Energy Sector - January, 84.

IADB Project Report - Electricity Development Program - October 87.

USAID Report - Nonutility Power Generation in Costa Rica, April 88.

USAID Report - Electric Power from Sugar Cane - July 88.

Potential Impediment and Policy Issues - April 88.

(v) JAMAICA
MAIN FEATURES OF REGULATORY ARRANGEMENTS

Existing Framework

The Jamaica Public Service Company Limited (JPS) has sole responsibility for the public generation, transmission and distribution of electricity. It is a 99% Government-owned corporation with its own Memorandum and Articles of Association. The balance of shares are owned privately.

The Petroleum Corporation of Jamaica (PCJ) which is a wholly owned state corporation established under the Petroleum Act of 1979 has among its other functions responsibility for implementation of power projects (under contracts with JPS). It is financially strong, well managed and reported to be one of the most effective organizations in the country. For this reason PCJ has diversified its functions outside petroleum to include implementation of power projects.

JPS operates under a licence (currently for 39 years) last reissued in 1978 and reports to the Ministry of Public Utilities and Transport (MPUT). MPUT which acts in a regulatory role ensures JPS observes its obligations under the licence, fixes rates and exercises financial supervision. The Ministry of Mining, Energy and Tourism (MMET) on the other hand is responsible for energy policy, fuel pricing, conservation and studies.

Evolution of Sector Organization

Prior to 1975 the regulatory function for the power sector was entrusted to the Public Utilities Commission, a statutory body. Subsequently in 1977 MPUT took over the regulatory role of MMET.

The Government established an Energy Division within the Ministry of Mining, Energy and Tourism (MMET). However, it proved to be unable to carry out its responsibilities and instead has focussed more on project development, conservation and alternative energy.

An energy assessment mission in 1985 noted that institutional issues requiring focus were:

- (i) Need to help the Energy Division overcome its organizational weaknesses and assume its designated central role and;
- (ii) co-ordination of efforts among all energy related bodies to ensure proper selection and implementation of projects.

A re-organization of the Energy Division was recommended to reduce its size and pool its limited skilled staff resources. Other recommendations included reconstitution of the National Advisory Council on Energy to advise MMET on policy, establishing an inter-ministerial committee to address outstanding issues and problems and establishing working committees for any major new energy projects.

The Bank and the Government were preparing a technical assistance program under ESMAP to support the Energy Division of MMET. However the energy assessment mission's recommendations do not yet appear to have been implemented.

JPS was originally established in 1923 as a private utility but was subsequently acquired by the Government in 1971. (99% acquisition was completed in 1975).

Over the period 1979-82, JPS suffered severe financial losses, labor disputes and frequent power outages. Following injections of foreign technical and financial assistance and after implementation of recommendations of a 1982 management audit, the company's performance improved. Under the Third Power Project the Bank funded a technical efficiency improvement program in parallel with management and staff improvement programs. Additional institution building improvements were sought under the Fourth Power Project (June 22, 1977) including further implementation of a corporate information system, re-alignment of JPS salaries, transfer of responsibility for project preparation and design work from PCJ to JPS.

The principal constraints faced by the power sector are the lack of qualified professionals and managers and the fragmentation of the Government's regulatory and energy policy functions in different Ministries.

Co-ordination of Sector Institutions

The Energy Division in MMET was unable to take a lead role in the sector due to:

- (i) Insufficient high calibre staff.
- (ii) Not being properly structured.
- (iii) Institutional problems - low pay, high staff turnover, internal communication and delegation.
- (iv) Lack of proper co-ordination and consultation with other energy institutions.

Following the Government's acquisition of JPS in 1975, responsibility for regulation of the sector was transferred to MPUT. A close relationship exists between the two with the Ministry closely involved in financial and investment planning in JPS.

Concentration of Supply in the National Power Market

In 1986, 52% of the population had access to electricity services. However consumption was mainly concentrated in metropolitan areas of Kingston and Montego Bay. About 19% of the rural population were connected to the grid.

Composition, Appointment, Powers and Duties of Board of Directors

The Board of Directors has overall corporate responsibility for company affairs. It has eleven members appointed by the Government with representation from industry, commerce, engineering and finance. Day-to-day operations is undertaken by the Chairman as Chief Executive and Managing Director.

List of Documents Reviewed

Issues and Options in the Energy Sector - April, 85
SAR - Third Power Project - May 28, 82
SAR - Fourth Power Project - June 22 87

ENERGY SERIES PAPERS

- No. 1 Energy Issues in the Developing World, February 1988.**
- No. 2 Review of World Bank Lending for Electric Power, March 1988.**
- No. 3 Some Considerations in Collecting Data on Household Energy Consumption, March 1988.**
- No. 4 Improving Power System Efficiency in the Developing Countries through Performance Contracting, May 1988.**
- No. 5 Impact of Lower Oil Prices on Renewable Energy Technologies, May 1988.**
- No. 6 A Comparison of Lamps for Domestic Lighting in Developing Countries, June 1988.**
- No. 7 Recent World Bank Activities in Energy (Revised September 1988).**
- No. 8 A Visual Overview of the World Oil Markets, July 1988.**
- No. 9 Current International Gas Trades and Prices, November 1988.**
- No. 10 Promoting Investment for Natural Gas Exploration and Production in Developing Countries, January 1989.**
- No. 11 Technology Survey Report on Electric Power Systems, February 1989.**
- No. 12 Recent Developments in the U.S. Power Sector and Their Relevance for the Developing Countries, February 1989.**
- No. 13 Domestic Energy Pricing Policies, April 1989.**
- No. 14 Financing of the Energy Sector in Developing Countries, April 1989.**
- No. 15 The Future Role of Hydropower in Developing Countries, April 1989.**
- No. 16 Fuelwood Stumpage: Considerations for Developing Country Energy Planning, June 1989.**
- No. 17 Incorporating Risk and Uncertainty in Power System Planning, June 1989.**
- No. 18 Review and Evaluation of Historic Electricity Forecasting Experience, (1960-1985), June 1989**
- No. 19 Woodfuel Supply and Environmental Management, July 1989**

ENERGY SERIES PAPERS cont'd

- No. 20 The Malawi Charcoal Project - Experience and Lessons, January 1990.**
- No. 21 Capital Expenditures for Electric Power in the Developing Countries
 in the 1990s, February 1990.**
- No. 22 A Review of Regulation of the Power Sectors in Developing Countries,
 February 1990**

Note: For extra copies of these papers please call Ms. Mary Fernandez on
 extension 33637.

INDUSTRY SERIES PAPERS

- No. 1 Japanese Direct Foreign Investment: Patterns and Implications for Developing Countries, February 1989.**
- No. 2 Emerging Patterns of International Competition in Selected Industrial Product Groups, February 1989.**
- No. 3 Changing Firm Boundaries: Analysis of Technology-Sharing Alliances, February 1989.**
- No. 4 Technological Advance and Organizational Innovation in the Engineering Industry, March 1989.**
- No. 5 The Role of Catalytic Agents in Entering International Markets, March 1989.**
- No. 6 Overview of Japanese Industrial Technology Development, March 1989**
- No. 7 Reform of Ownership and Control Mechanisms in Hungary and China April 1989.**
- No. 8 The Computer Industry in Industrialized Economies: Lessons for the Newly Industrializing, February 1989.**
- No. 9 Institutions and Dynamic Comparative Advantage Electronics Industry in South Korea and Taiwan, June 1989.**
- No. 10 New Environment for Intellectual Property, June 1989.**
- No. 11 Managing Entry Into International Markets; Lessons From the East Asian Experience, June 1989.**
- No. 12 Impact of Technological Change on Industrial Prospects for the LDCs, June 1989.**
- No. 13 The Protection of Intellectual Property Rights and Industrial Technology Development in Brazil, September 1989.**
- No. 14 Regional Integration and Economic Development, November 1989.**
- No. 15 Specialization , Technical Change and Competitiveness in the Brazilian Electronics Industry, November 1989.**
- No. 16 Small Trading Companies and a Successful Export Response: Lessons From Hong Kong, December 1989.**

(next page)

